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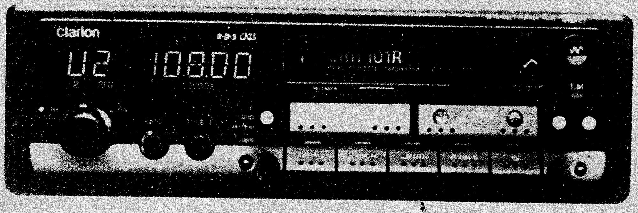
Service Dept.—50 Kamitoda, Toda-shi, Saitama, 335 Japan Tel: 0484-43-1111 Telex: J2962628 CLAFAC-J

clarion Service Manual

Published by Service Administration Section

CRX111R


CRH101R

RDS/FM·MPX/MW/LW RADIO CASSETTE COMBINATION WITH CD CHANGER CONTROL

Model CRX111R
(PE-9436A)

Model CRH101R
(PE-9437A)

SPECIFICATIONS:

Radio section

Circuit system:	Superheterodyne
Tuning system:	Electronic tuning
Receiving frequency:	LW 153kHz to 281kHz MW 531kHz to 1,602kHz UKW(FM) 87.5MHz to 108MHz
Intermediate frequency:	LW, MW 450kHz UKW(FM) 10.7MHz

Tape section

Reproduction system:	Auto reversing 4 track, 2 channel stereo cassette tape playback (Monaural also capable)
Tape speed:	4.76cm/sec. (1-7/8 ips)

Composite

Load impedance:	4Ω×4
Power output:	15W×4
Power supply voltage:	DC 14.0V(10.8V to 15.6V) Negative ground
Power consumption:	Less than 10A (at max. output)
Dimensions:	Width 178mm Height 50mm Depth 160mm
Weight:	1.7kg

- Dolby noise reduction System manufactured under license from Dolby Laboratories Licensing Corporation
- "Dolby" and the double-D symbol [][] are trademarks of Dolby Laboratories Licensing Corporation

COMPONENTS:

● **CRX111R (PE-9436A-B)/ CRH101R (PE-9437A-B)**

Main unit		1
Guide label (wire connection)	285-1438-00 (CRX111R)	1
Guide label (wire connection)	285-1439-00 (CRH101R)	1
Mounting bracket	300-6954-00	1
Mounting bracket	300-9035-01	1
Extension lead	854-1877-00	1
Parts bag	921-8601-00	1
{ Removal tool	341-1387-01	1
Parts bag	921-8735-00	1
{ Spacer	345-3653-01	1
Tap screw	700-5016-80	1
Screw	716-0726-01	1
Nut	722-0314-00	1
Plate nut	725-0216-00	1
Parts bag	921-8803-00	1
{ Sticker	291-0051-00	2
DCP case	346-0071-00	1

FEATURES:

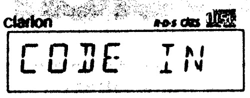
- RDS (Radio Data System): PI (Programme Identification), AF (Alternative Frequency), TP (Traffic Programme Identification), TA (Traffic Announcement), PS (Programme Service name), REG (Regional Selection)
- One-touch Memory (10 FM, 5 MW/LW)
- Tuning Modes: Manual Tuning and Station Seek
- Preset Scan (PS) & Auto Store (AS) on FM/MW/LW
- Full Logic Control Operation
- Key-Off Pinch Roller Release
- Dual Azimuth Adjustment Mechanism
- Automatic 70 μsec. Tape Equalization Selector (MTL)
- APC (Automatic Programme Control)
- Blank Skip & Repeat
- Dolby" B/C Noise Reduction
- Loudness Switch
- Maximum Power Output: 15 W×4
- 4-Channel Line-Out
- CD/DAT Input Terminal
- CD Changer Control
- Night Illumination with Illumination Colour Selector
- Detachable Control Panel

■CATS III (Computer Anti-Theft System III):

Operation

[1] Entering the CATS Code

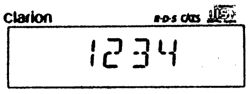
1. Turn the power off by turning the ON/VOL knob ① fully counterclockwise.
2. Press the TUNER switch ⑭, and while keeping it pressed, turn the ON/VOL knob ① clockwise to turn on the power.


clarion
R·D·S CATS disc
CODE IN

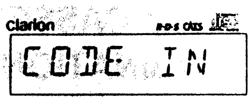
Digital Display

"CODE IN" starts blinking on the display.

3. Input an arbitrary 4-digit number using the Preset buttons (1 to 5) ⑲.

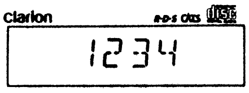

clarion
R·D·S CATS disc
1234

(Example) Input 1-2-3-4


clarion
R·D·S CATS disc
CODE IN

"CODE IN" starts blinking again.

4. Input the same four digits again.


clarion
R·D·S CATS disc
1234

(Example) Input 1-2-3-4

The CATS code input is completed. Now the unit will operate normally.

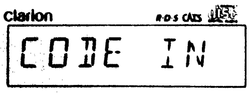
When the second input of the CATS code has been correctly done, the CATS code is registered. After "CATS ON" has been displayed, the power to the unit will be switched on.

Notes:

1. Do not forget your CATS code. In the event that you lose your CATS Card and forget your CATS code, your dealer can send the unit to the factory to have the CATS code erased; but only if you can prove you are the rightful owner of the unit.
2. In case you have input a wrong 4-digit number in step 3:
   If, for example you input 2-2-3-4 instead of 1-2-3-4, input any 4-digit number other than 2-2-3-4 in step 4. The unit will then return to the condition in step 2, where the "CODE IN" blinks on the display. Continue by keying in the correct CATS code.
3. If the input numbers in steps 3 and 4 do not match:
   If you input, for example, 1-2-3-4 in step 3 and then 2-2-3-4 in step 4, the unit will return to its original condition. Continue with steps 3 and 4.
4. In case you realise your mistake before entering all 4 digits in step 3 or 4, enter any digits to complete the entry. Then proceed as explained in notes 2 or 3 above.
   Proceed in the same way to correct input mistakes made during [2] Releasing CATS or [3] Erasing or Changing the CATS Code.

[2] Releasing CATS (when you have removed the car stereo or sent the car for servicing)

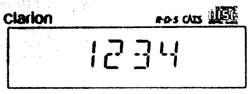
1. Turn the power on by turning the ON/VOL knob ① clockwise.


clarion
R·D·S CATS disc
CODE IN

Digital Display

"CODE IN" starts blinking on the display.

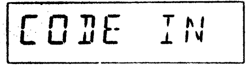
2. Input your CATS code.


clarion
R·D·S CATS disc
1234

(Example) Input 1-2-3-4

[3] Erasing and Changing the CATS Code

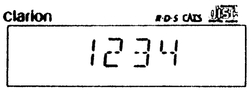
1. Turn the power off by turning the ON/VOL knob ① fully counterclockwise.
2. Press the TUNER switch ⑭, and while keeping it down, turn the ON/VOL knob ① clockwise to turn on the power.


clarion
R·D·S CATS disc
CODE IN

Digital Display

"CODE IN" starts blinking on the display.

3. Input your CATS code.


clarion
R·D·S CATS disc
1234

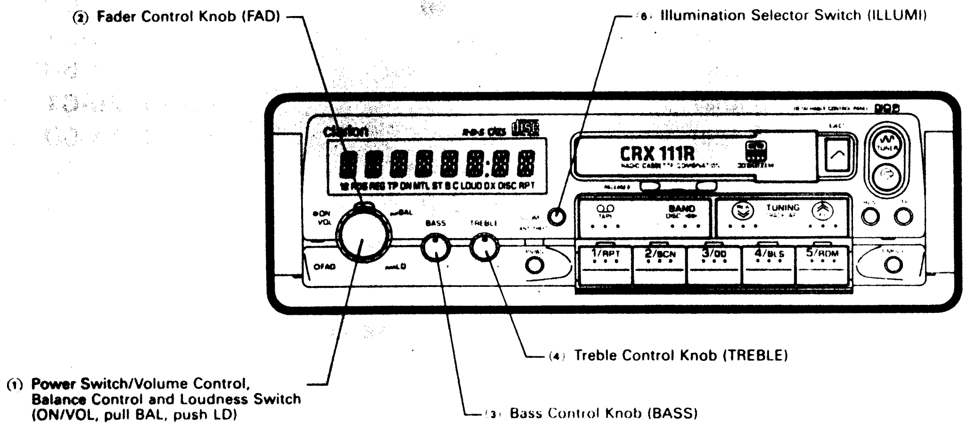
The CATS code has now been erased, and the unit will operate normally. To input a new CATS code, follow the steps in [1] Entering the CATS Code.

When the erasure of the CATS code has been completed, "CODE CLR" will be displayed. After this the power to the unit will be switched on.

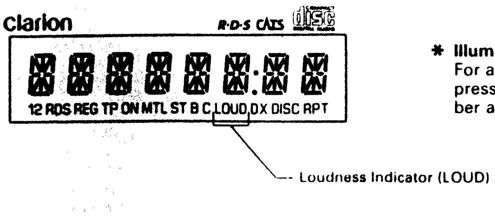
Note: In case you input a wrong CATS code in step 3, the unit will return to the condition after step 1, so continue with steps 2 and 3.

■OPERATION:

General Section

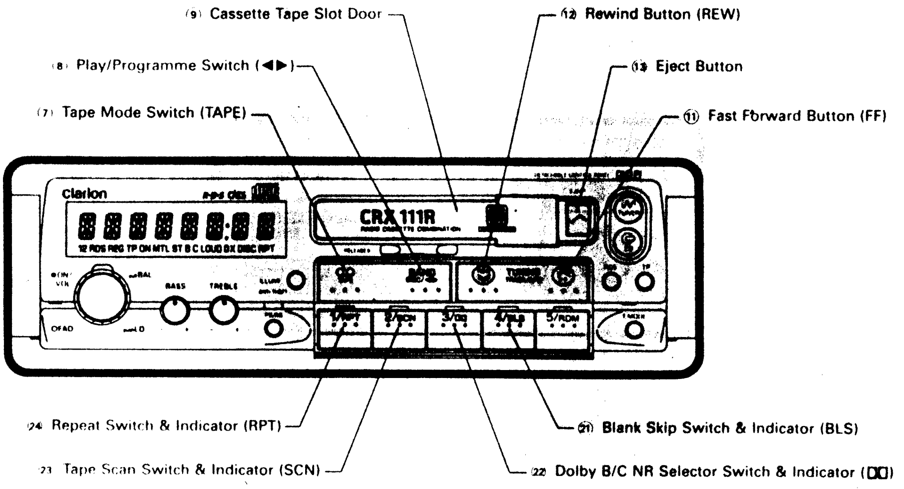

② Fader Control Knob (FAD)
⑥ Illumination Selector Switch (ILLUMI)
clarion
CRX 111R
BASS
TREBLE
BAND
TUNING
1/RPT
2/SCN
3/DD
4/BLS
5/RDM
④ Treble Control Knob (TREBLE)
① Power Switch/Volume Control, Balance Control and Loudness Switch (ON/VOL, pull BAL, push LD)
③ Bass Control Knob (BASS)

■ DISPLAY

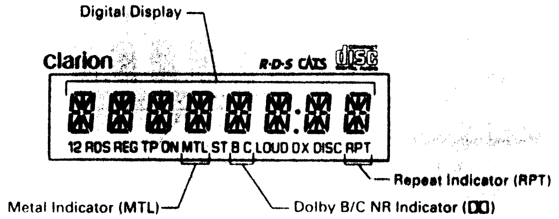

clarion
R·D·S CATS disc
12 RDS REG TP ON MTL ST B C LOUD DX DISC RPT
Loudness Indicator (LOUD)

＊ Illumination Selector Switch (ILLUMI) ☛ ⑥
For a perfect match with the colour of your car's instrument lighting, press this switch to switch the illumination of the unit between amber and green.

Cassette Tape Playback


⑨ Cassette Tape Slot Door
⑧ Play/Programme Switch (◀▶)
⑦ Tape Mode Switch (TAPE)
⑫ Rewind Button (REW)
⑬ Eject Button
⑪ Fast Forward Button (FF)
㉔ Repeat Switch & Indicator (RPT)
㉓ Tape Scan Switch & Indicator (SCN)
㉑ Blank Skip Switch & Indicator (BLS)
㉒ Dolby B/C NR Selector Switch & Indicator (DD)
clarion
CRX111R

■ DISPLAY


Digital Display
clarion
R·D·S
12 RDS REG TP ON MTL ST B C LOUD DX DISC RPT
Repeat Indicator (RPT)
Metal Indicator (MTL)
Dolby B/C NR Indicator (DD)

✱ Metal Tape Detection
Correct equalization is automatically selected according to the tape used.
When you insert a 70 μsec. tape (such as a CrO_2, FeCr, or METAL tape), the unit detects and switches the tape equalization to 70 μsec.The "MTL" indicator will light.

✱ EJECT Button ☛ ⑬
Press this button to eject the cassette. The cassette can be ejected even if the ignition key is turned off.

✱ Tape Mode Switch ☛ ⑦
When listening to the radio and a tape has been inserted, pressing this switch will switch from the tuner to tape deck operation and playback starts automatically.

✱ Play/Programme Switch ☛ ⑧
Press this switch from any tape mode to start tape playback. Playback starts automatically when you press the Tape Mode Switch ⑦ during radio reception or CD playback.
Press the Play/Programme switch during playback to reverse the tape transport direction and listen to the opposite side. The display will show in which direction the tape is playing, as follows:

Tape transport direction	
TAPE))	Upper tracks playing
TAPE ((	Lower tracks playing

✱ Fast Forward/Rewind Button ☛ ⑪/⑫
Press the FF or REW button to advance or rewind the tape at high speed.
Press the Play/Programme Button (◀▶) to stop fast forward or rewind and resume with normal playback.

✱ APC (Auto Programme Control) Switches ☛ ⑪/⑫
Press the FF or REW button twice to activate APC. The tape is forwarded or rewound to the beginning of the next or previous track, from which point normal playback resumes.

✱ Dolby B/C NR Selector Switch (DD) ☛ ㉒
Press this switch when playing back tapes recorded with Dolby* Noise Reduction.
Press once to activate Dolby B NR (the "B" indicator lights).
Press once more to engage Dolby C NR (the "C" indicator lights).
Press a third time to disengage Dolby NR.

- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
- "DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

✱ Repeat Switch (RPT) ☛ ㉔
In the tape mode, press this switch to repeat playback of a track. "REPEAT" is displayed on the display.
When playback of the current track is complete, the tape is rewound and playback of the track is repeated.
Press the switch once more to disengage the repeat mode.

✱ Blank Skip Switch (BLS) ☛ ㉑
In the tape mode, press this switch to activate the Blank Tape Skip mode. "BLANK" is displayed on the display.
If a blank tape portion exceeding 10 seconds is found during playback, the tape will be forwarded automatically to the beginning of the next track.
Press the switch once more to disengage the Blank Tape Skip mode.

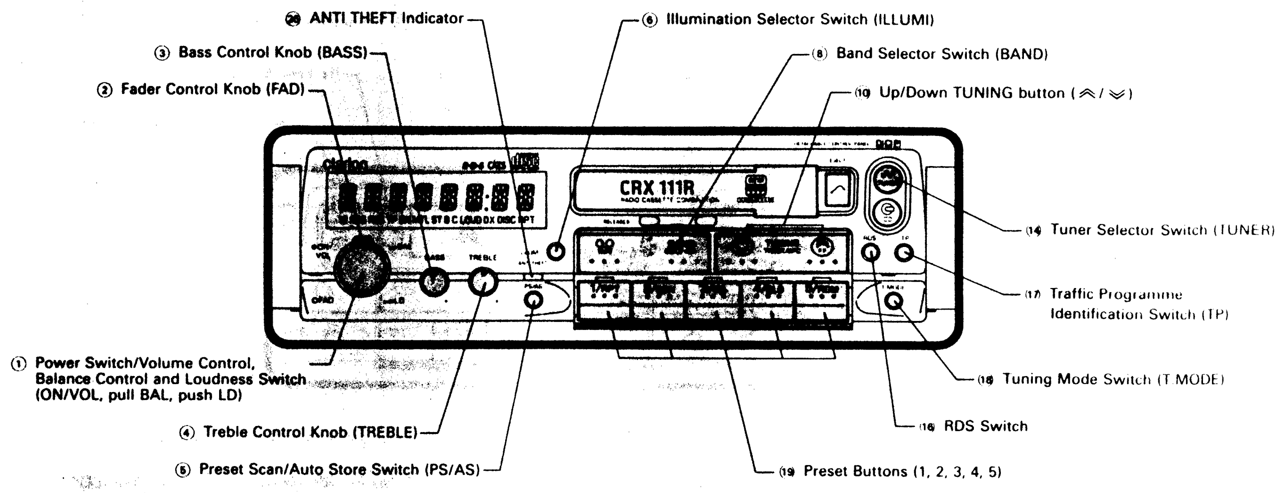
✱ Tape Scan Switch (SCN) ☛ ㉓
In the tape mode, press this switch to activate the Tape Scan mode. When engaged, the indicator above the switch lights.

When the Tape Scan mode is engaged, pressing the FF button ⑪ twice to engage SCAN, the tape is fast forwarded to the next track, 10 seconds of the track is played back, then the tape is forwarded to the following track, 10 seconds is played, and so on. During Forward Scanning, "FF SCAN" is displayed.
To cancel Tape Scan, press this switch again.
To scan the tape in the reverse direction, press the REW button ⑫ instead of the FF button ⑪. During Reverse Scanning, "REW SCAN" is displayed.

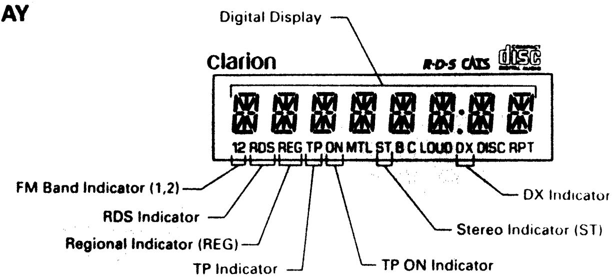
Note:
APC, Blank Tape Skip, Repeat and Tape Scan will not always work properly with the following types of tape:

- Tapes recorded at low levels.
- Tapes with conversation.
- Tapes on which the blank portions between tracks are less than FOUR seconds long.
- Tapes with long silences (e.g. pianissimo) in the recordings.
- Tapes lacking blank portion between tracks, such as live recordings.
- Tapes with much noise between tracks.

Listening to the Radio

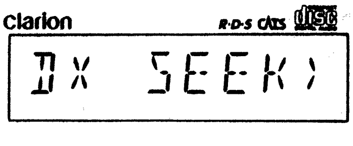

⑳ ANTI THEFT Indicator
③ Bass Control Knob (BASS)
② Fader Control Knob (FAD)
⑥ Illumination Selector Switch (ILLUMI)
⑧ Band Selector Switch (BAND)
⑩ Up/Down TUNING button (⩓/⩔)
⑭ Tuner Selector Switch (TUNER)
⑰ Traffic Programme Identification Switch (TP)
① Power Switch/Volume Control, Balance Control and Loudness Switch (ON/VOL, pull BAL, push LD)
⑱ Tuning Mode Switch (T.MODE)
⑯ RDS Switch
④ Treble Control Knob (TREBLE)
⑤ Preset Scan/Auto Store Switch (PS/AS)
⑲ Preset Buttons (1, 2, 3, 4, 5)
CRX 111R

■ TUNER MODE DISPLAY

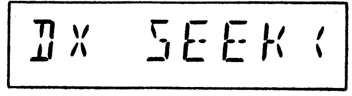

Digital Display
Clarion
R·D·S CATS disc
12 RDS REG TP ON MTL ST B C LOUD DX DISC RPT
FM Band Indicator (1,2)
RDS Indicator
Regional Indicator (REG)
TP Indicator
DX Indicator
Stereo Indicator (ST)
TP ON Indicator

✱ Band Switch (BAND) ☛ ⑧
The radio band is switched as follows each time this switch is pressed: FM (1) → FM (2) → (MW/LW) → FM (1), and so on. The Band Indicator (1, 2) indicates the selected FM band (1 or 2) and goes out when MW/LW has been selected.
When MW/LW has been selected, the unit will interpret these two bands as one band. Thus, if searching for a station on MW and none is found, the unit will switch to LW and continue its search for stations, and vice versa.

✱ Seek Tuning
Press the T.MODE switch to clear "MAN" in the display. Also, if no button is pressed for five seconds when the Manual Tuning mode has been engaged, the unit will revert to the Seek Tuning mode.
Press the right side (⩓) of the TUNING button ⑩ to search for broadcasting stations at higher frequencies and to tune in the next station. Press the left side (⩔) to search at lower frequencies. "DX SEEK >" or "DX SEEK <", respectively, is displayed.

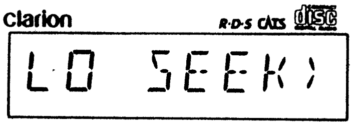

Clarion
R·D·S CATS disc
DX SEEK>

DX SEEK Up

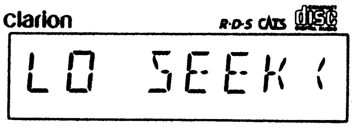

Clarion
R·D·S CATS disc
DX SEEK<

DX SEEK Down

When pressing the TUNING button ⑩, the DX mode is set. To seek for stations in the Local mode (with lowered sensitivity), press the T.MODE switch ⑱ for 2 seconds or more. In this case "LO SEEK >" or "LO SEEK <" will be displayed.


Clarion
R·D·S CATS disc
LO SEEK>

Local SEEK Up


Clarion
R·D·S CATS disc
LO SEEK<

Local SEEK Down

- Use Local Seek (LO) to search for strong stations only, and DX Seek for all other stations.

✱ Preset Buttons (1, 2, 3, 4, 5) ☛ ⑲
It is possible to programme five stations on each of the FM 1, FM 2 and MW/LW bands. Each Preset button has two functions, depending on how long it is kept pressed.

- Press the Preset button for less than two seconds to recall a Preset station.
- Press the Preset button for more than two seconds to memorise the tuned in station.

✱ Preset Scan/Auto Store Switch (PS/AS) ☛ ⑤
This switch has two functions, depending on how long it is kept pressed.
Pressing this switch for more than two seconds, up to five strong stations in the area are stored on the five presets for the selected band.
Pressing the switch for less than two seconds, the preset stations on the selected band are scanned.

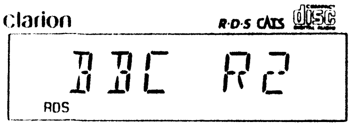
■ Using the Radio Data System (RDS)

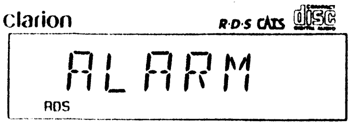
✱ RDS Switch ☛ ⑯

- This switch is off when the unit is turned on for the first time.
- RDS only works on the FM band.
- When the RDS switch is switched on, "RDS" is displayed.
  1. When an RDS broadcast station is received, the name of the received station will be displayed (PS: Programme Service name).
  2. If the receiving conditions worsen while receiving an RDS broadcast, the unit will automatically switch to another frequency on which the same broadcast is available under better receiving conditions.
  3. When an emergency broadcast, in which a PTY (Programme Type code) alarm code is transmitted, is received during the reception of an RDS broadcast, "ALARM" will be displayed and the volume level will be increased and the broadcast message is heard.

Notes:

1. Even when listening to a tape or CD, the unit will switch to the radio and the emergency broadcast can be listened to. At this time the radio operation buttons cannot be used.
2. By switching off the RDS switch during the emergency broadcast, the set will return to the tape or CD operation mode.


clarion
R·D·S CATS
BBC R2
RDS


clarion
R·D·S CATS
ALARM
RDS

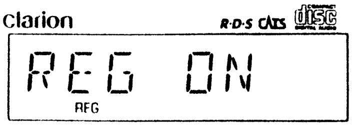
4. When the receiving conditions worsen while receiving an RDS broadcast and there is no stronger broadcast station transmitting the same broadcast, "RDS" will start flashing in a little while.
When the receiving conditions improve, the flashing of "RDS" will stop.

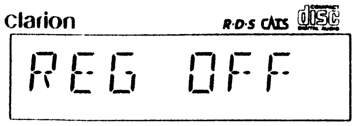
5. When the right side (︽) or the left side (︾) of the TUNING button ⑩ is pressed while the RDS switch is on, the unit will only search for stations broadcasting RDS signals.

6. Preset Scan during RDS reception:
Pressing the PS/AS switch ⑤ for less than two seconds when the RDS switch is switched on, only preset stations broadcasting the RDS signal will be tuned in.
Auto Store during RDS reception:
Pressing the PS/AS switch ⑤ for more than two seconds when the RDS switch is switched on, only RDS stations with different content will be stored on the Preset buttons ⑲.

- **Same Programme Search (PI: Programme Identification)**
If you press a Preset button ⑲ on which an RDS station is stored and the station cannot be received (RDS indicator flashes), press the same Preset button ⑲ one more time ("SEARCH" is shown in the display). The set will search for stations at other frequencies with the same programme content, i.e. the same PI code, as the station stored in memory. Thus, a desired programme can easily be tuned in although the broadcasting frequency is unknown.

- **REG (Regional) Switching**
1. Pressing the RDS switch ⑯ for 2 seconds or longer permits on/off switching of the Regional mode. The initial setting is the on state in which the "REG" indicator is lit.
"REG ON" is displayed at the time the Regional mode is engaged, and "REG OFF" is displayed at the time the mode is disengaged.


clarion
R·D·S CATS
REG ON
REG

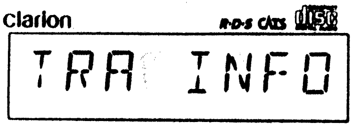

clarion
R·D·S CATS
REG OFF

2. When the Regional mode is engaged (REG indicator lit), only the same station is automatically tracked.
When the Regional mode is off, the local programme is tracked and you can continue to listen to a programme being switched from one station to another without any interruption.
Example: If a soccer match is being broadcast on BBC 1 and is switched to BBC 2 when the Regional mode is engaged, the unit will track this switch and go to the new station, BBC 2, when the switch is made.

Note:
- REG only works on the FM band.

*** Traffic Programme Switch (TP) ☞ ⑰**

1. The TP switch is off when the unit is turned on for the first time.
2. When the TP switch is switched on, "ON" is displayed.
When a TP station is received, the TP indicator lights. This indicates that the station is broadcasting the RDS TP code or the SK signal in case of ARI broadcast.
When the TP switch is on and a station broadcasting traffic announcements is tuned in, the TP ON indicators are lit.
"TRA INFO" is displayed when a traffic information announcement is broadcast. The volume will increase to the preset level and you will hear the the traffic announcement.


clarion
R·D·S CATS
TRA INFO

Notes:
1. Even when listening to a tape or CD, the unit will switch to the radio and the traffic information announcement can be listened to.
At this time the radio operation buttons cannot be used.
2. Switching off the TP switch during the traffic information announcement, the unit will return to the tape or CD operation mode.
3. When the right side (︽) or the left side (︾) of the TUNING button ⑩ is pressed while the TP switch is on, the unit will only search for stations broadcasting the TP signal.

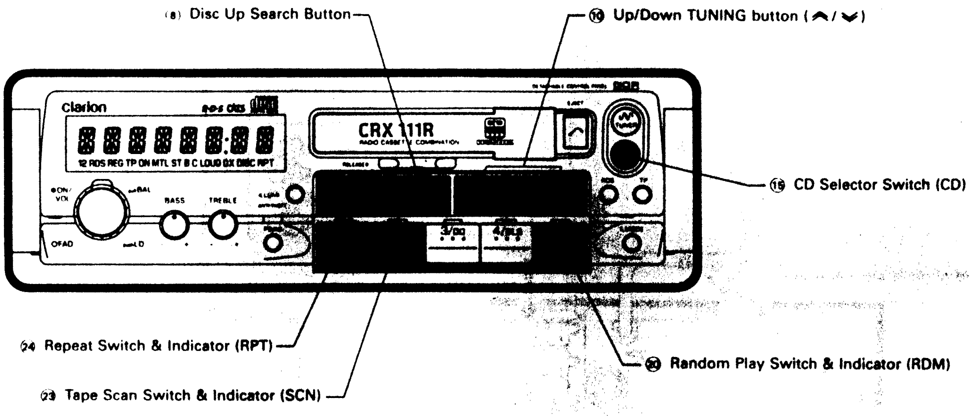
Note:
When this button is pressed in areas where traffic information is not broadcast, the seek operation is not cancelled and so the TP switch should be switched off to stop seek tuning.

4. Preset Scan when the TP switch is on:
Pressing the PS/AS switch ⑤ for less than two seconds when the TP switch is switched on, only preset stations broadcasting the TP signal will be tuned in.
Auto Store when the TP switch is on:
Pressing the PS/AS switch ⑤ for more than two seconds when the TP switch is switched on, only stations broadcasting traffic information announcements will be stored on the Preset buttons ⑲.

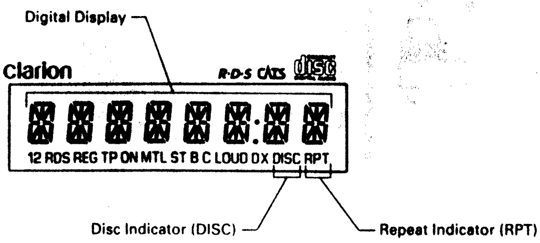
Note:
The TP switch only works on the FM band.

5. In the tape mode or the CD mode when the TP indicator is lit, switching on the RDS switch ⑯ will provide continuous, automatic tracking of the TP station.

CD Changer Control


⑧ Disc Up Search Button
⑩ Up/Down TUNING button (︽/︾)
⑲ CD Selector Switch (CD)
㉔ Repeat Switch & Indicator (RPT)
㉓ Tape Scan Switch & Indicator (SCN)
⑳ Random Play Switch & Indicator (RDM)
clarion
CRX111R
RADIO CASSETTE COMBINATION
12 RDS REG TP ON MTL ST B C LOUD DX DISC RPT
BASS
TREBLE
BAL
ON/VOL
FAD
RDS
TP

■ DISPLAY


Digital Display
clarion
R·D·S CATS
12 RDS REG TP ON MTL ST B C LOUD DX DISC RPT
Disc Indicator (DISC)
Repeat Indicator (RPT)

✱ **CD Selector Switch (CD) ☛ ⑮**
This switch is used to switch from the tuner, cassette deck, or an external accessory component to the CD Changer mode. CD playback starts when this switch is pressed from the Tuner or Cassette mode.
When the CD Selector Switch ⑮ is pressed, "CD LOAD" is displayed, the power to the CD Changer is switched on, and playback starts from the first track on the first disc. (First time only)
If no magazine has been set in the CD Changer, "NO MAGAZ" will be displayed.

When the CD Selector Switch ⑮ is pressed, the display will first show "CD LOAD", then the disc number, and upon that the track number. During actual disc play, both the track and the played time will be displayed.
Refer to the figure on the right for the display messages:

Display System		
①	CD selection	CD LOAD
②	DISC display	Disc No. 88 DISC
③	TRACK display	TRACK No. 88 TRACK
④	During play	TRACK No. P-TIME 88 88:88
	Random play	RANDOM
	No magazine	NO MAGAZ
	No such disc	NO DISC

Error Display
- CD Auto-changer
  1. Mechanism failure
  2. Temperature rising and bedewing
- Tuner
  1. PLL unlocked
- Tape
  1. Mechanism failure

"Error" message is displayed due to the cases above.

■ Last Position Memory Function

This function stores in memory the track that was being played when the power was switched off while a CD was playing or when another mode was selected. The next time playback on the CD Changer is started, play will begin from the beginning of the last track played.

✱ **Disc UP Search Button ☛ (8)**
This button is used when you wish to listen to a different CD.
Pressing the Disc UP button (8), the CD Changer will set the next higher disc, the disc number will be displayed, and playback continues from the selected disc.
With each subsequent press of the button, the disc number will change and the disc corresponding to the number displayed on the digital display at that time will be played.
If there is no disc in the place corresponding to the displayed number, "NO DISC" will be displayed on the digital display and the player will automatically change to the next disc and play it.

■ Track Search ☛ ⑩

Press the right side of the TRACK button (⩓) to start playback from the next track. Press the left side of the TRACK button (⩔) to return to the beginning of the track currently being listened to and continue play from there.
To move ahead or back several tracks at once, press either side of the TRACK button repeatedly.

■ Fast Forward/Fast Return ☛ ⑩

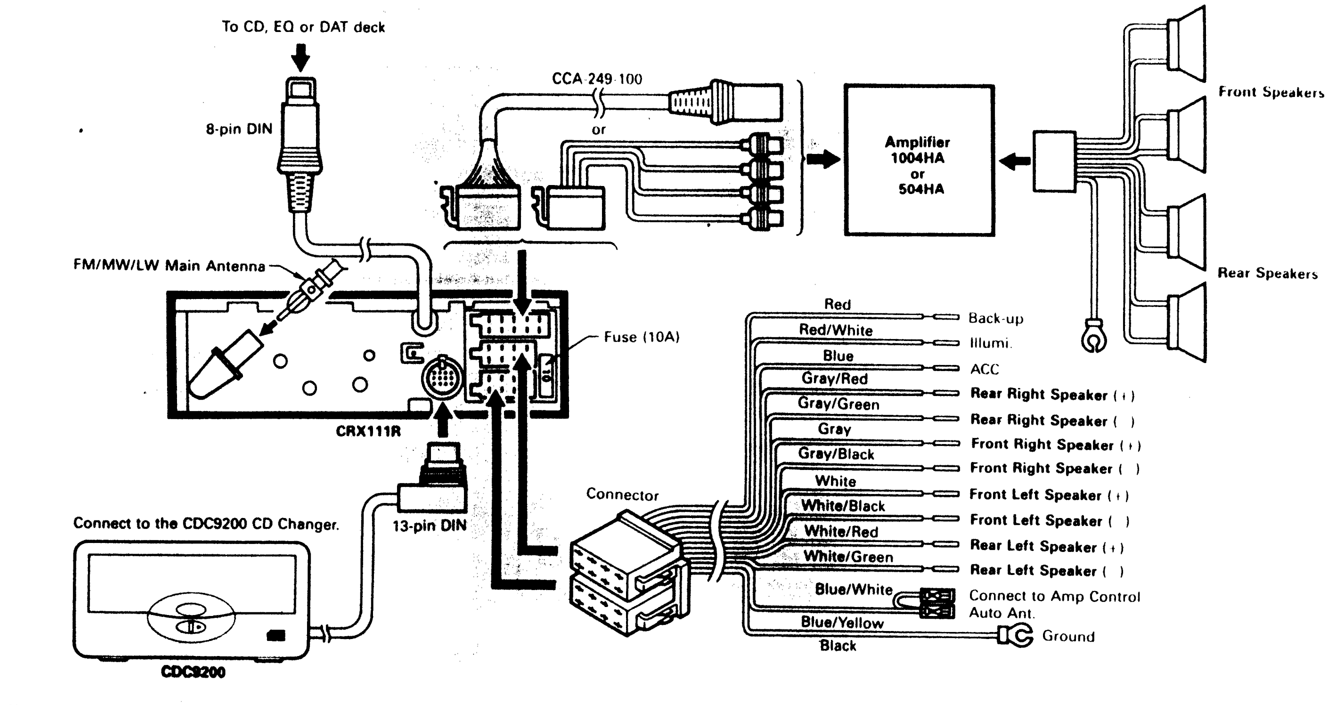
Keeping the right side of the TRACK button (⩓) pressed, high-speed playback in the forward direction is engaged.
Keeping the left side of the TRACK button (⩔) pressed, high-speed playback in the reverse direction is engaged.
Release the button to stop high-speed playback and resume normal playback.

✱ **Repeat Switch (RPT) ☛ ㉔**
Press the RPT switch once to repeatedly play back the current selection. The RPT indicator will light.
Press the RPT switch once more for repeat playback of the current DISC. The DISC and RPT indicators will light.
Press the RPT switch a third time to disengage repeat playback, and confirm that the DISC and RPT indicators go off.

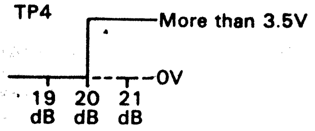
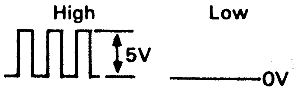
✱ **Scan Switch (SCN) ☛ ㉓**
Pressing the SCN switch causes the indicator at the top of the switch to light and the CD Changer to play the first 10 seconds of each track on the loaded CDs.
When the track you are searching for is played, press the SCN switch again to continue playback of that track. At the same time the indicator will go off.

✱ **Random Play Switch (RDM) ☛ ⑳**
Pressing the RDM switch causes the indicator at the top of the switch to light, "RANDOM" is displayed, and random play of all tracks on the selected disc begins.
When all of the tracks on the disc have been played once, the next disc is selected and random playback of that disc continues.
When there are no more discs left in the magazine, random playback will start anew from the first disc in the magazine.
To cancel random playback, press the RDM switch once more and make sure "RANDOM" disappears from the display.

■WIRE CONNECTION:

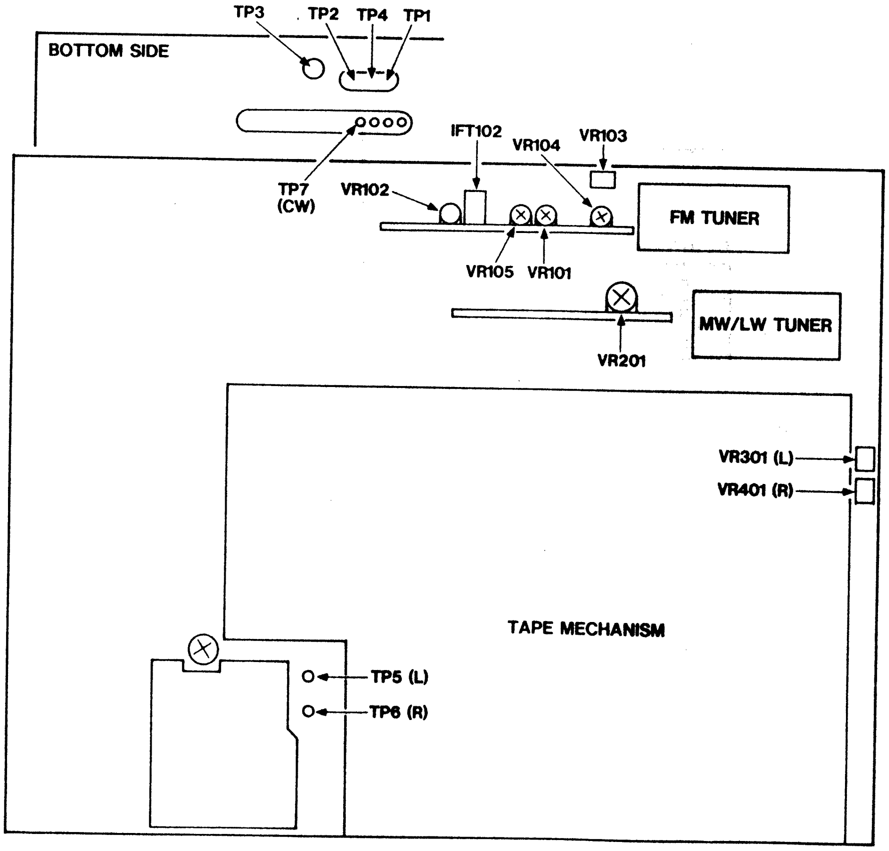

To CD, EQ or DAT deck
8-pin DIN
CCA 249 100
or
Amplifier
1004HA
or
504HA
Front Speakers
Rear Speakers
FM/MW/LW Main Antenna
Fuse (10A)
CRX111R
Connect to the CDC9200 CD Changer.
13-pin DIN
Connector
CDC9200
Red
Back-up
Red/White
Illumi.
Blue
ACC
Gray/Red
Rear Right Speaker (+)
Gray/Green
Rear Right Speaker ( )
Gray
Front Right Speaker (+)
Gray/Black
Front Right Speaker ( )
White
Front Left Speaker (+)
White/Black
Front Left Speaker ( )
White/Red
Rear Left Speaker (+)
White/Green
Rear Left Speaker ( )
Blue/White
Connect to Amp Control
Auto Ant.
Blue/Yellow
Black
Ground

ADJUSTMENT:

Adjustment item	Adjustment point	Procedure
OV	IFT102	1. Connect the digital voltmeter to TP1 and TP2. 2. Input the 98.1MHz/55dB signal and adjust the reading of digital voltmeter to 0.000V±50mV by IFT102.
Limiter	VR104	1. Input the 98.1MHz, 55dB SSG signal. (400Hz MOD) 2. Adjust VR to make the set output 0dB (2.45V). 3. Reduce the output of SG 10dB. 4. Adjust VR104 untill output level decrease to 3dB.
SD	VR105	1. Input the 98.1MHz/20dB signal (400Hz MOD). 2. Adjust VR105 so that the voltage of TP4 is in the range 0V to 3.5V. 
S-meter	VR103	1. Connect the digital voltmeter to TP3. 2. Input the 98.1MHz frequency at 65dB (400Hz MOD) and adjust the level to 4.5V±0.1V by VR103.
SASC	VR101	1. Input the 98.1MHz/65dB, 7kHz modulation frequency, 30% modulation degree SSG signal. 2. Adjust the output level of the volume controller to 0dBm (2.45V). 3. Set the SSG output to 33dB and adjust VR101 so that the output level is −2dB.
Separation	VR102	1. Input the 98.1MHz, connect the output of a stereo modulator to the external modulation terminal, and input a 65dB SSG signal. 2. Set the stereo modulator to the L or R ch and adjust VR102 so that the maximum separation is obtained.
CW (Carrier Wave)	VR201	1. Input the 98.1MHz/55dB, 1kHz (MONO) modulation frequency, 2.0kHz modulation rate SSG signal. 2. Connect the oscilloscope to TP7. 3. Adjust VR103 so that the waveform of TP7 is in the range 5V to 0V. (2.0±0.2kHz) 
Dolby NR	VR301 and VR401	Insert a Dolby level test tape (400Hz−200nWb/m), connect the milli-volt meter to TP5 and TP6, and adjust VR301 and VR401 to obtain an output of $245mV^{+1.5}_{-0.5}dB$.

- SPECIFICATION —LIMIT— Quieting sensitivity: MW Less than 32dB (at 20dB S/N)
  LW Less than 39dB (at 20dB S/N)
  UKW Less than 12dB (at 30dB S/N)
  Stereo separation: UKW More than 20dB

● ADJUSTMENT POINT



■EXPLANATION OF IC's:

Refer to description in IC service manual vol. 1.

KC-819	051-0606-01	Hybrid IC for Tone Control	P23

Refer to description in IC service manual vol. 2.

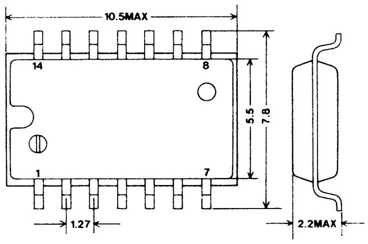
NJM2058M	051-0556-01	Quad. OP. Amp.	P41
LA2000C	051-0620-00	Music Interval Detection	P43

Refer to description in IC service manual vol. 3.

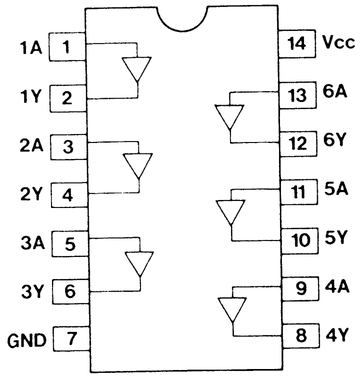
μPD7225G-00	051-1151-00	Programmable LCD Controller/Driver	P27
TC4013BF	051-0142-05	C-MOS IC	P44
M5201FP	051-0853-01	Switch OP. Amp.	P30
MB3771PF(-G)	051-0869-05	Power source voltage Supervisory IC	P41
LC7070NM	051-1150-00	Sync/Error correction LSI for RDS	P11
LB0354	051-0619-01	Loudness with Muting	P22
TA8205AH	051-0958-01	15W BTL×2 ch Power Amp.	P24
DL-BC-01	051-1157-00	Dolby B/C Noise Reduction Hybrid IC	P15
TA7705F	051-0714-01	Dual Preamp for Auto reverse Car stereo	P13
NJL5161K-P	051-1114-00	Super-Thin type Photoreflector	P38

■HD74LS07FPD 051-0160-56 Hex Buffers/Drivers

Outward Form


10.5MAX
14
8
1
7
5.5
7.8
1.27
2.2MAX

Block Diagram


1A 1
1Y 2
2A 3
2Y 4
3A 5
3Y 6
GND 7
14 Vcc
13 6A
12 6Y
11 5A
10 5Y
9 4A
8 4Y

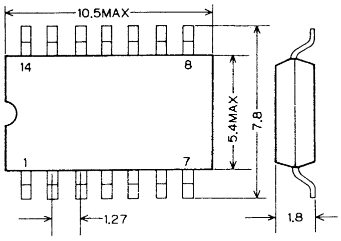
Truth Table

A	Y
H	H
L	L

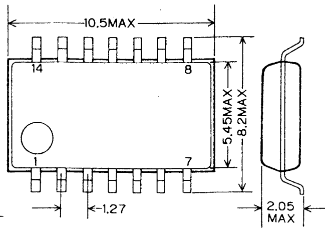
Y = A

■TC4066BF 051-0267-05 / MC14066BF 051-0267-35 QUAD BILATERAL SWITCH

Outward Form

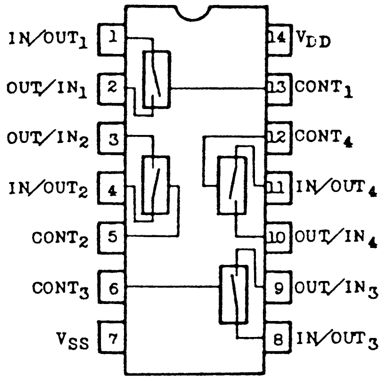

10.5MAX
14
8
1
7
5.4MAX
7.8
1.27
1.8

TC4066BF


10.5MAX
14
8
1
7
5.45MAX
8.2MAX
1.27
2.05 MAX

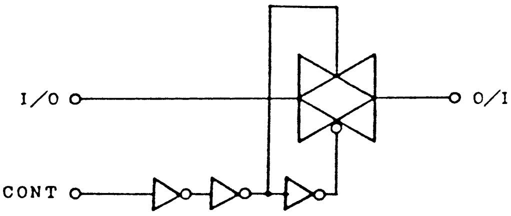
MC14066BF

Terminal Connection


IN/OUT1 1
OUT/IN1 2
OUT/IN2 3
IN/OUT2 4
CONT2 5
CONT3 6
VSS 7
14 VDD
13 CONT1
12 CONT4
11 IN/OUT4
10 OUT/IN4
9 OUT/IN3
8 IN/OUT3

(TOP VIEW)

Block Diagram

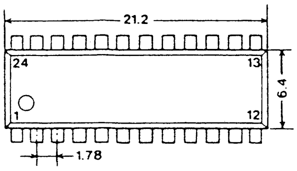


Truth Table

CONTROL	Impedance Between IN/OUT-OUT/IN
H	0.5～5×10²Ω
L	>10⁹Ω

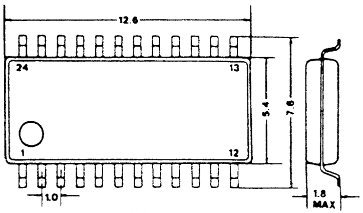
■LA2231-A 051-1144-01 RDS Decoder
LA2231M-B 051-1144-10

Outward Form



21.2
24
13
6.4
1
12
1.78

LA2231-A



12.6
24
13
5.4
7.8
1
12
1.0
1.8 MAX

LA2231M-B

Function

(1) DSB demodulation

(2) Sub-carrier wave regeneration

(3) Bit rate clock regeneration

(4) Data differential decoding

(5) ARI-SK discrimination

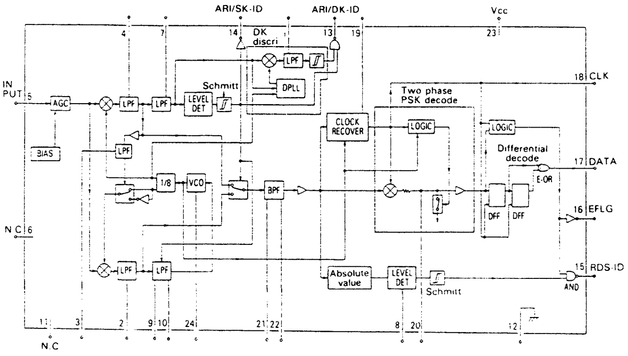
(6) ARI-DK discrimination

(7) RDS indicator driving

(8) ARI indicator driving

(9) Data error indicating output

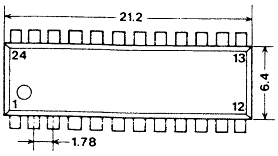
Block Diagram



ARI/SK-ID
ARI/DK-ID
Vcc
DK discri
Schmitt
DPLL
IN PUT
AGC
LPF
LEVEL DET
BIAS
CLOCK RECOVER
LOGIC
Two phase PSK decode
Differential decode
E-OR
1/8
VCO
BPF
DFF
N.C
Absolute value
Schmitt
AND
18 CLK
17 DATA
16 EFLG
15 RDS-ID

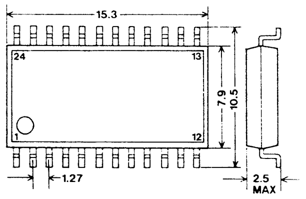
■LC7218 051-1323-00 Electronic Tuning PLL Frequency
LC7218M 051-1323-05 Synthesizer

Outward Form



21.2
24
13
6.4
1
12
1.78

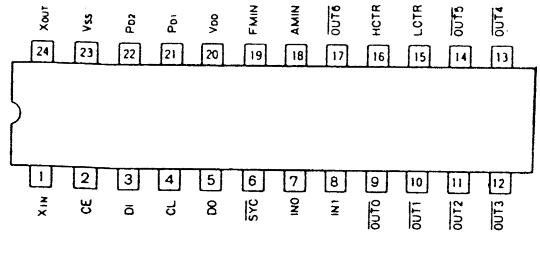
LC7218



15.3
24
13
7.9
10.5
1
12
1.27
2.5 MAX

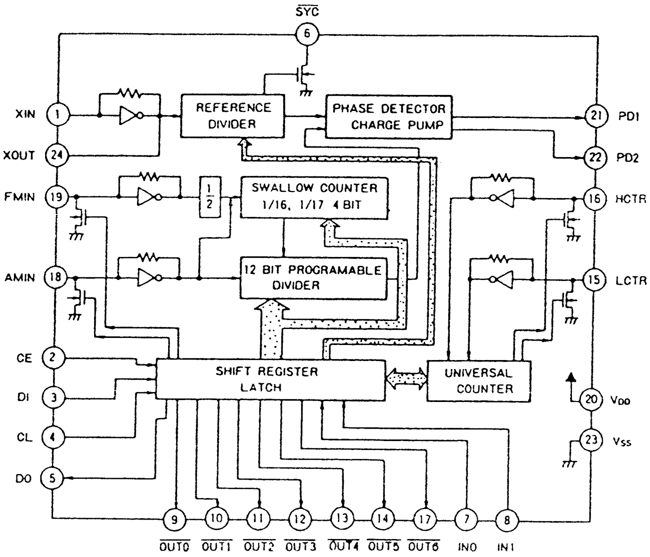
LC7218M

Terminal Connection



XOUT
VSS
PD2
PD1
VDD
FMIN
AMIN
OUT6
HCTR
LCTR
OUT5
OUT4
24
23
22
21
20
19
18
17
16
15
14
13
1
2
3
4
5
6
7
8
9
10
11
12
XIN
CE
DI
CL
DO
SYC
IN0
IN1
OUT0
OUT1
OUT2
OUT3

Block Diagram



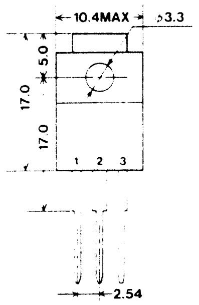
SYC
XIN
XOUT
FMIN
AMIN
CE
DI
CL
DO
REFERENCE DIVIDER
PHASE DETECTOR CHARGE PUMP
1/2
SWALLOW COUNTER 1/16, 1/17 4 BIT
12 BIT PROGRAMABLE DIVIDER
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
PD1
PD2
HCTR
LCTR
VDD
VSS
OUT0
OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
IN0
IN1

Terminal Connection Table

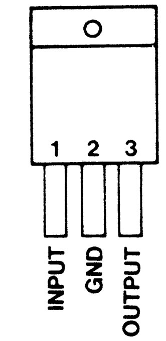
No.	Terminal name	Function
1 24	X_{IN} X_{OUT}	Crystal connecting terminal. (7.2MHz)
2	CE	Chip enable terminal: H level when input and output serial data.
3	DI	Input data terminal: Serial data input, transferred from controller to this IC.
4	CL	Clock terminal: Synchronous clock when input and output serial data.
5	DO	Output data terminal: Serial data output, transferred from this IC to controller.
6	SYC	Controller clock terminal. (400kHz)
7 8	IN0 IN1	Input port: Signal from both terminals is transformed from parallel to serial data, output from DO output terminal.
9 ≀ 14 17	OUT0 ≀ OUT5 OUT6	Output port: Serial data $O_0 \sim O_6$ transferred from controller is latched, inverting data to output parallel data.
15	LCTR	General purpose counter frequency/input terminal for cycle measuring signal.
16	HCTR	Input terminal for signal measuring general purpose counter frequency.
18	AMIN	Input terminal for local oscillating signal.
19	FMIN	Input terminal for local oscillating signal.
20	V_{DD}	Power terminal.
21 22	PD1 PD2	Charge pump output terminal.
23	V_{SS}	Ground terminal.

■µPC2410HF 051-1272-00 Stable Power Supply of Positive Voltage

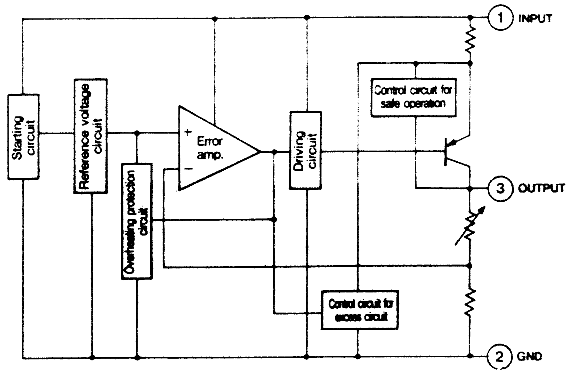
Outward Form


10.4MAX
3.3
5.0
17.0
17.0
1 2 3
2.54

Terminal Connection


1 2 3
INPUT
GND
OUTPUT

Block Diagram

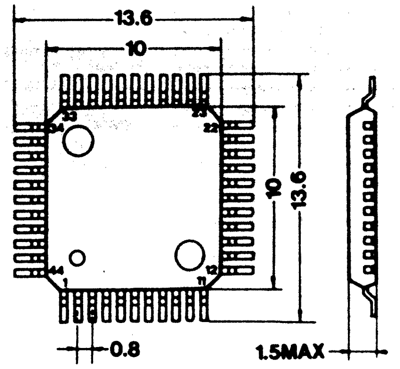

① INPUT
③ OUTPUT
② GND
Starting circuit
Reference voltage circuit
Overheating protection circuit
Error amp.
Driving circuit
Control circuit for safe operation
Control circuit for excess circuit

Electrical Characteristics (Ta=25°C, V_{IN}=15V, I_0=500mA)

Item	Symbol	Condition	Min	Typ	Max	Unit
Output voltage	V_0	0℃≦Ta≦125℃ 11V≦V_{IN}≦25V 5mA≦I_0≦500mA	9.7		10.3	V
Input stability	REG_{IN}	11.5V≦V_{IN}≦25V		12	100	mV
Load stability	REG_L	5mA≦I_0≦1A		6	100	mV

■µPD75006GB-539-3B4 051-1301-20 SF-X mechanism controller

I Outward Form


13.6
10
33
34
23
22
44
1
12
11
10
13.6
0.8
1.5MAX

II Terminal Description

Pin No.	Terminal name	I/O	Function
1	NC	O	Unused (open).
2	MTL OUT	O	Output for a change-over to the metal mode. This terminal is used for switching over the equalizer of the preamplifier, changing the output signal to "Hi" when the output signal of Terminal 5 is "Low".
3	5V-REMOTE	O	ON/OFF controller for 5V power source. "Hi" when Acc is ON. "Low" when Acc is OFF.
4	APC DETECT	I	Detection of the level for selecting music. "Low" during the interval between pieces of music. "Hi" when music is playing.
5	MTL-SW	I	Detection of a metal tape. "Low" in the case of a metal tape. "Hi" in the case of a normal tape.
6	PACK-SW	I	Detection of the presence of cassette tape. "Low" only when the pack is set in the fixed position. "Hi" in other cases.
7	PLAY-SW	I	Detection of the PLAY mode. "Low" when it is in the PLAY mode. "Hi" in other cases.
8	STOP-SW	I	Detection of the STOP mode. "Low" when it is in the STOP mode. "Hi" in other cases.
9	EJECT-END SW	I	Detection of the completion of EJECT operation. "Low" when the EJECT is completed. "Hi" in other cases.
10	FF-SW	I	Detection of FF (REW) position. "Low" when it is in the FF (REW) APC mode. "Hi" in other cases.
11	NC	–	Unused (GND).
12	NC	–	Unused (open).
13	DOLBY ON/OFF	O	Output of the DOLBY ON/OFF signal. "Hi" when DOLBY is ON. "Low" when DOLBY is OFF.
14	DOLBY B/C	O	Output of the DOLBY B/C change-over signal. "Low" when DOLBY is in B. "Hi" when DOLBY is in C.
15	AUX/TAPE	O	Output of the AUX/TAPE change-over signal. "Low" when it is in the CD/TUNER mode. "Hi" when it is in the TAPE mode.
16	$\overline{SRQ}$	O	Serial bus line SRQ port. A selected piece of music plays when the service request mode is "Low". "Hi" normally.
17	Vss	–	GND.
18	XT1	–	Connected to GND.
19	XT2	–	Open.
20	$\overline{RESET}$	I	Detection of RESET mode. "Low" when it is in the RESET mode.
21 22	X1 X2	–	Main system clock.
23 24 25	P-P3 P-P1 P-P2	O O O	Output of a power motor control signal.

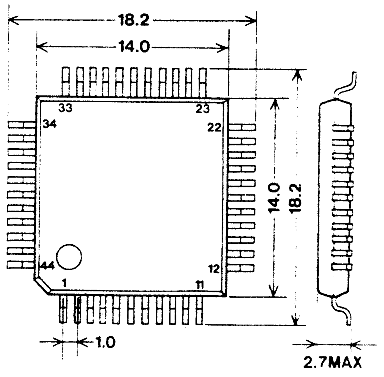
Operation mode	P-P1	P-P2	P-P3
EJECT mode	L	L	L
EJECT in operation	L	L	H
Hold	L	H	H
Unused	H	L	H
Head shift	H	H	L
Loading	H	H	H

<table>
<tr><th>Pin No</th><th>Terminal name</th><th>I/O</th><th>Function</th></tr>
<tr><td>26
27
28</td><td>M-P2
M-P1
M-P3</td><td>O
O
O</td><td>Output of a main motor control signal.
<table>
<tr><th>Operation mode</th><th>M-P1</th><th>M-P2</th><th>M-P3</th></tr>
<tr><td>STOP</td><td>L</td><td>L</td><td>L</td></tr>
<tr><td>PLAY (FWD)</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>Change-over of both direction and speed of rotation</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>PLAY (REV)</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>FWD-FF, REV-REW</td><td>H</td><td>H</td><td>L</td></tr>
<tr><td>FWD-REW, REV-FF</td><td>H</td><td>H</td><td>H</td></tr>
</table></td></tr>
<tr><td>29
30
31</td><td>S-SI
S-SO
$\overline{\text{SCK}}$</td><td>I
O
I</td><td>Serial bus line SI port.
Serial bus line SO port.
Serial bus line SCK port.</td></tr>
<tr><td>32</td><td>Acc-CONT</td><td>I</td><td>Acc control.
Input "Hi" when Acc is ON.
Input "Low" when Acc is OFF.</td></tr>
<tr><td>33</td><td>P13</td><td>–</td><td>Connected to GND.</td></tr>
<tr><td>34</td><td>NC</td><td>–</td><td>Unused (open).</td></tr>
<tr><td>35</td><td>FWD-REEL</td><td>I</td><td>Detection of a reel rotation in the FORWARD side.</td></tr>
<tr><td>36</td><td>LOAD-START</td><td>I</td><td>Detection of the start of tape loading.
Input "Hi" when loading starts to operate.</td></tr>
<tr><td>38</td><td>NC</td><td>–</td><td>Unused. Connected to V_{DD}.</td></tr>
<tr><td>39</td><td>V_{DD}</td><td>–</td><td>5V power source.</td></tr>
<tr><td>40</td><td>MECH Vcc</td><td>O</td><td>ON/OFF control of the mechanism power source.
Output "Hi" when the power source is ON.
Output "Low" when it is OFF.</td></tr>
<tr><td>41</td><td>MECH. $\overline{\text{MUTE}}$</td><td>O</td><td>Mute control.
Output "Low" when MUTE is ON.
Output "Hi" when MUTE is OFF.</td></tr>
<tr><td>42</td><td>PRE F/R</td><td>O</td><td>FWD/REV change-over.
Output "Hi" when it is in the FWD mode.
Output "Low" when it is in the REV mode.</td></tr>
<tr><td>43</td><td>APC P/F</td><td>O</td><td>Change-over of input level.
Output "Low" when it is in the PLAY mode.
Output "Hi" when it is in the FF-REW mode.</td></tr>
<tr><td>44</td><td>P73</td><td>O</td><td>Open.</td></tr>
</table>

■TA8151F(CLAR) 051-1371-00 FM PROCESSOR

TA8151 is a FM tuner IC, which is integrated from IF to MPX stages into one chip.

Outward Form



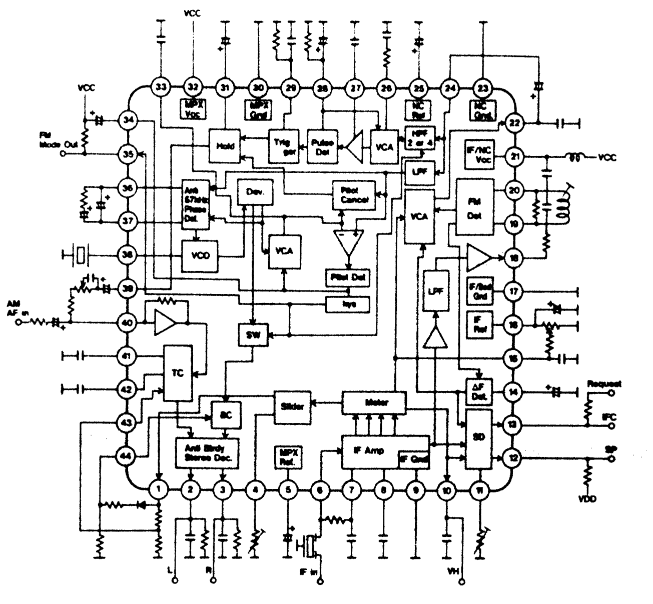
Function

IF ……IF limiter amplification/differential peak FM detection/meter output/electric field strength muting/detuning muting/stop detection/IF counting request

NC ……Noise detection/noise AGC/noise detecting wave changeover/signal delay/unadjusted pilot cancellation/signal holding

MPX ……Unadjusted PLL method stereo decoder/blender control/tone control (low-cut, high-cut)/anti-ARI/anti-birdie.

Block Diagram



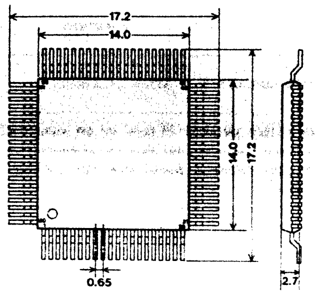
Terminal Connection

Pin No.	Symbol	Function
1	SO	Slider output terminal.
2	L out	MPX output terminal.
3	R out	
4	Slide	Blender of MPX unit, controllable range setting terminal for electric field strength of tone.
5	Ref. 3	3rd nominal voltage terminal.
6	IF in	IF amp. input terminal.
7	Bias	Provide bias to 6th pin via R.
8	By 1	IF amp. bypass terminal.
9	G 1	IF amp. ground terminal.
10	Meter	Meter output terminal in FM mode, and meter input terminal for slider circuit in AM mode.
11	SD	Sensitivity setting terminal of station detector.
12	SP	Pulse counting output terminal stopped by station detector.
13	IFC	IF counting output terminal.
14	ΔF	ΔF detector output smoothing terminal.
15	SM	Soft-mute characteristic setting terminal.
16	Ref 1	1st nominal voltage terminal.
17	G 4	Sub-straight ground terminal.
18	IF out	IF limiter amp. output terminal.
19	Det 1	Input terminal of differential peak detection.
20	Det 2	
21	B 1	Power terminals of IF and NC units.
22	AF out	Audio signal output terminal.
23	G 2	Ground terminal.
24	NC in	Input terminal of noise canceler unit.
25	Ref 2	2nd nominal voltage terminal.
26	By 2	AGC amp. bypass terminal of noise canceler unit.
27	By 3	Noise amp. bypass terminal of noise canceler unit.
28	AGC	Noise AGC time-constant setting terminal of noise canceler unit
29	PW	Trigger-pulse range setting terminal of noise canceler unit
30	G 3	Ground terminal of MPX unit

Pin No.	Symbol	Function
31	Hold	Composite signal holding terminal of noise canceler unit.
32	B 2	Power terminal of MPX unit.
33	P	Canceling signal output terminal for pilot cancellation.
34	PiD	Output terminal of pilot detection circuit.
35	Mode	Mode output terminal of stereo/mono selection.
36	PhD1	Output terminal of phase detection circuit.
37	PhD2	
38	VCO	VCO circuit oscillation terminal.
39	NC out	Noise canceler output terminal.
40	MPX in	MPX input terminal.
41	LC	Cut-off frequency setting terminal.
42	HC	
43	TC	Tone-control (low-cut, high-cut) control terminal.
44	BC	Blender control terminal.

■µPD75328GC-115-3B9 051-1380-02 Slave Micro Computer

Outward Form



Outline

(1) The IC, as slave microcomputer, is to have function for data communication via serial bus interface with master microcomputer.

(2) RDS decoder IC and synchronizing/correcting IC are controlled to input RDS data.

Terminal Connection

<table>
<tr><th>Pin No.</th><th>Terminal Name</th><th>I/O</th><th>Function</th></tr>
<tr><td>1～28</td><td></td><td>O</td><td>Unused (OPEN).</td></tr>
<tr><td>29</td><td>$\overline{\text{DK IND}}$</td><td>I</td><td>ARI DK IND detection port.
Active : LOW</td></tr>
<tr><td>30</td><td>$\overline{\text{SK IND}}$</td><td>I</td><td>ARI SK IND detection port.
Active : LOW</td></tr>
<tr><td>31</td><td>$\overline{\text{RDS IND}}$</td><td>I</td><td>RDS IND detection port.
Active : LOW</td></tr>
<tr><td>32</td><td>M6/$\overline{\text{M5}}$</td><td>I</td><td>Detection port of M6/M5 selection.
High=M6, Low=M5</td></tr>
<tr><td>33</td><td>GND</td><td>I</td><td></td></tr>
<tr><td>34</td><td>R/$\overline{\text{CD}}$</td><td>O</td><td>RADIO/CD audio changeover port.
High=RADIO, Low=CD Auto Changer</td></tr>
<tr><td>35</td><td>$\overline{\text{REMOTE}}$</td><td>O</td><td>REMOTE Output port
Active : LOW</td></tr>
<tr><td>36</td><td>$\overline{\text{MUTE}}$</td><td>O</td><td>MUTE Output port
Active : LOW</td></tr>
<tr><td>37</td><td>$\overline{\text{SRQ}}$</td><td>O</td><td>Service Request Output port
Active : LOW</td></tr>
<tr><td>38</td><td>ACC DET</td><td>I</td><td>Detection port of ACC power ON/OFF (POWER DCP), master microcomputer controls ACC-CONT.
High=ACC-ON, Low=ACC-OFF
Active : High</td></tr>
<tr><td>39</td><td>$\overline{\text{SCK}}$</td><td>O</td><td>Serial bus line SCK port</td></tr>
<tr><td>40</td><td>SO</td><td>O</td><td>Serial bus line SO port</td></tr>
<tr><td>41</td><td>SI</td><td>I</td><td>Serial bus line SI port</td></tr>
<tr><td>42</td><td>RDS CLK</td><td>I</td><td>RDS CLOCK input port.
RDS data is input from LC7070.</td></tr>
<tr><td>43
44</td><td></td><td>I</td><td>GND</td></tr>
<tr><td>45</td><td>PLL DO IN</td><td>I</td><td>PLL data input.</td></tr>
<tr><td>46</td><td>RDS DATA</td><td>I</td><td>RDS DATA input port.
RDS data is input from LC7070.</td></tr>
<tr><td>47</td><td>RDS START</td><td>I</td><td>RDS DATA START bit input port.
RDS data is input from LC7070.</td></tr>
<tr><td>48

49</td><td>RDS ERROR

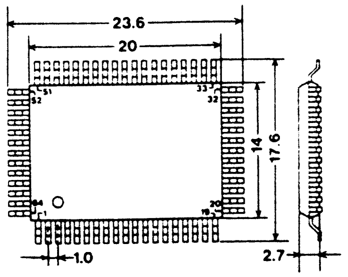
RDS CORR</td><td>I

I</td><td>ERROR
LOW : Incorrectable error occurred.
HI : No error occurred or corrected.
CORRECTION
<table>
<tr><th></th><th>CORR</th><th>ERROR</th></tr>
<tr><td>No error</td><td>H</td><td>H</td></tr>
<tr><td>Corrected</td><td>L</td><td>H</td></tr>
<tr><td>Incorrectable</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>50</td><td></td><td>O</td><td>Unused (OPEN).</td></tr>
<tr><td>51</td><td>PLL CLK</td><td>O</td><td>PLL clock output.</td></tr>
<tr><td>52</td><td>PLL DI OUT</td><td>O</td><td>PLL data output.</td></tr>
<tr><td>53</td><td>PLL CE</td><td>O</td><td>PLL chip enable port.
Active : High</td></tr>
<tr><td>54</td><td>LPF change-over</td><td>O</td><td>Low-pass filter changeover port.</td></tr>
<tr><td>55</td><td>ST ON/OFF</td><td>O</td><td>Stereo/mono changeover port.
Active : High</td></tr>
<tr><td>56</td><td>ANT DUMP</td><td>O</td><td>Hi : Antenna sensitivity decreased.
Active : High</td></tr>
<tr><td>57</td><td>AV_{REF} OUT</td><td>O</td><td>A/D nominal voltage output.</td></tr>
<tr><td>58</td><td>FM S-METER</td><td>I</td><td>FM s-meter input. (Analog input)</td></tr>
<tr><td>59
60
61
62
63</td><td></td><td>I</td><td>GND.</td></tr>
<tr><td>64</td><td>A/D GND</td><td>I</td><td>A/D converter GND.</td></tr>
<tr><td>65</td><td>A/D REF</td><td>I</td><td>Input of A/D converter nominal voltage.</td></tr>
<tr><td>66</td><td>V_{DD}</td><td></td><td>Supply voltage of 5V.</td></tr>
<tr><td>67</td><td>XT1</td><td>I</td><td>GND.</td></tr>
<tr><td>68</td><td>XT2</td><td>–</td><td>Unused (OPEN).</td></tr>
<tr><td>69</td><td>V_{PP}</td><td></td><td>Connect to V_{DD}.</td></tr>
<tr><td>70
71</td><td>X1
X2</td><td></td><td>System clock.</td></tr>
<tr><td>72</td><td>$\overline{\text{RESET}}$</td><td>I</td><td>RESET input. Active : Low</td></tr>
<tr><td>73</td><td>$\overline{\text{RDS RESET}}$</td><td>O</td><td>Function to reset LC7070.
Active : Low</td></tr>
<tr><td>74</td><td>IF REQ</td><td>O</td><td>IF REQUEST output port. Active : High</td></tr>
<tr><td>75</td><td>IF MUTE</td><td>O</td><td>IF MUTE output. Active : High</td></tr>
<tr><td>76</td><td>$\overline{\text{DX}}$/LO</td><td>O</td><td>DX/LO changeover output port.
Low : DX, High : Local</td></tr>
<tr><td>77</td><td></td><td>I</td><td>GND.</td></tr>
<tr><td>78</td><td>FM SD</td><td>I</td><td>FM SD input port. Active : High</td></tr>
<tr><td>79</td><td>$\overline{\text{CW}}$ IN</td><td>I</td><td>CW (Carrier Wave) detection input port.
Active : Low</td></tr>
<tr><td>80</td><td>$\overline{\text{ST}}$ IN</td><td>I</td><td>ST detection input port.
Active : Low</td></tr>
</table>

■μPD75116GF-699-3BE 051-1381-02 Master Micro Computer

Note: With the aid of the diode switch (initializing diode matrix), this microcomputer is available for SF-X mechanism (full logic mechanism) and RM-4 (mechanical mechanism). Some functions of each terminal and key may be classified by setting the diode switch.

I. Outward Form



II. Outline

(1) The IC, as master microcomputer, is to have function for data communication via serial bus interface with slave microcomputer, SF-X mechanism microcomputer, CD auto-changer.
(2) LCD driver is controlled by serial data.
(3) Tuner unit is compatible with RDS.
(4) DCP (Detachable Control Panel).
(5) Dual illumination.
(6) Direct changeover for TAPE/RADIO/CD auto-changer.

III. Terminal Connection

Pin No.	Terminal Name	I/O	Function
63 64 1 2 3 4 5 6	KO3 KO2 KO1 KO0 KO7 KO6 KO5 KO4	O	Key scan signal output.
7	$\overline{\text{RESET}}$	I	RESET signal input. Usually, High
8 9	X2 X1		System clock.
10 11 12 13 14 15 16 17	CATS-LED CH1-LED CH2-LED CH3-LED CH4-LED CH5-LED CH6-LED W ILLMI	O	CATS-LED output. CH1-LED output. (RPT) CH2-LED output. (SCAN) CH3-LED output. (DOLBY) CH4-LED output. (BLS) CH5-LED output. (RDM) CH6-LED output. DUAL-ILLUMI output.
19 20	D-SET D-RESET	O	Flip-flop control output for serial interface (C-BUS).
21	DK-OUT	O	Output of LOW signal with VOL increasing, when interrupted with traffic information and emergency broadcasting.
22	LOUD-OUT REMOTE	O	LOUDNESS ON/OFF signal output. LOUDNESS ON : High
23	MTL-OUT	O	(1) SF-X mechanism Unused (OPEN) (2) RM-4 mechanism METAL ON/OFF signal output. METAL ON : High
24	CD-STOP	O	CD STOP signal output. CD STOP : High
25	REM-1	O	AMP. power supply ON/OFF control signal output. AMP. ON : High
26	Vss	I	GND.
27	PS/AS	I	PS/AS detect signal input. Active : High In TUNER ON, the preset scanning operation is started when the key is released within 2 sec, while the auto store operation is started when the key is held down over 2 sec.
28	GND	I	
29	EJECT	I	(1) SF-X mechanism EJECT key detect signal input. Detection is made at High. (2) RM-4 mechanism Unused (OPEN).
30	$\overline{\text{BACK UP}}$	I	Input terminal to detect +B (battery) power off: Low when +B is off.
31	GND	I	
32	$\overline{\text{LCD-BUSY}}$	I	LCD-BUSY input. Active : Low
33 34	GND	I	
35	GND	I	
37	$\overline{\text{LCD-RESET}}$	O	LCD-RESET output. Active : Low
38	ACC-CONT REM-2	O	ACC control signal output for slave microcomputer. ACC ON : High, ACC OFF : Low
39	APC-ON /OFF	O	(1) SF-X mechanism Unused (OPEN). (2) RM-4 mechanism APC ON/OFF signal output. APC ON : High
40	BEEP	O	Sensor tone signal output. (4kHz)
41	SI	I	Serial bus line data input.
42	SO	O	Serial bus line data output.
43	$\overline{\text{SCK}}$	O	Serial bus line clock output.
44	ACC IN	I	ACC power ON/OFF detect input. ACC power ON : High ACC power OFF : Low
45	$\overline{\text{SRQ}}$	I	Serial bus line SRQ (Service Request) input. Request queuing occurred at "Low" position. Normally "High" position.
46	$\overline{\text{PACK IN}}$	I	(1) SF-X mechanism Unused (GND). (2) RM-4 mechanism Cassette PACK IN/OUT signal input. PACK IN : Low, PACK OUT : High
47	FWD/$\overline{\text{REV}}$	I	(1) SF-X mechanism Unused (GND). (2) RM-4 mechanism Tape running direction detect signal input. FWD : High, REV : Low
48	$\overline{\text{CD-}}$ $\overline{\text{REMOTE}}$	I	CD PLAY detect signal input. CD PLAY : Low, CD STOP or CD OFF : High
49 50	DOLBY-ON DOLBY-BC	O	(1) When DOLBY C is set to ON by the diode switch. Pin 49 | Pin 50 | DOLBY H | H | DOLBY C H | L | DOLBY B L | L | OFF (2) When DOLBY C is set to OFF by the diode switch. Pin 49 | Pin 50 | DOLBY L | H | DOLBY B H | L | OFF
51	$\overline{\text{R}}$/T	O	(1) SF-X mechanism Unused (OPEN). (2) RM-4 mechanism RADIO/TAPE selector. TAPE : High, RADIO : Low
52	$\overline{\text{MUTE}}$	O	System MUTE signal output. MUTE ON : Low, MUTE OFF : High
53 54 55 56	KEYIN3 KEYIN2 KEYIN1 KEYIN0	I	Key signal input.
57	Vpp		Connect to V_{DD}.
58	V_{DD}		Supply voltage of 5V.
59	LCD C/$\overline{\text{D}}$	O	LCD-COMMAND/DATA output. COMMAND : High, DATA : Low
60	LCD-$\overline{\text{CS}}$	O	LCD-CHIP SELECT output. Active : Low
61	LCD-DATA	O	LCD-DATA output.
62	LCD-SCK	O	LCD-SCK output.

IV. Key Matrix

§ 1. Key Matrix Table

IN \ OUT	KOUT0 (pin2)	KOUT1 (pin1)	KOUT2 (pin64)	KOUT3 (pin63)	KOUT4 (pin6)	KOUT5 (pin5)	KOUT6 (pin4)	KOUT7 (pin3)
KEYIN0 (pin56)		M1/RPT	M2/SCAN	M3/DOLBY	RDS	TP		DOLBC
KEYIN1 (pin55)		M4/BLS (APC)	M5/RDM (MTL)	M6	CD	TUNER		
KEYIN2 (pin54)		UP	DOWN	T-MODE	PSAS	STMONO	LOUD	MINIJA
KEYIN3 (pin53)		BAND/PRO	TAPE	LOUD2		ILLUMI		SFX

( ) ...... RM-4 mechanism

☐ Momentary SW ◹ Diode SW

Note: This microcomputer set is not always equipped with all of these keys.

§ 2. Diode Switch (Initializing Diode Matrix)

* The following table shows that the diode is SHORT in case of "1" and OPEN in case of "0".

Switch Name	Function
DOLBC	Set DOLBY B-C or DOLBY B. 0: DOLBY B 1: DOLBY B-C
SFX	Set RM-4 or SF-X mechanism. 0: RM-4 mechanism 1: SF-X mechanism
MINIJA (Use only for RM-4 mechanism)	Set CD deck or portable CD player. 0: Portable CD player 1: CD deck

§ 3. Momentary Switch

Switch Name	Function
TUNER	TUNER ON key.
BAND PRO	○BAND selector key when TUNER ON. → FM1 → FM2 → AM(MW/LW) → ○The function changes with the mechanism when TAPE ON. (1) SF-X mechanism Program change or PLAY key. (2) RM-4 mechanism Key is invalid. ○DISC UP key when CD ON.
TAPE	TAPE ON key.
PS/AS	In TUNER ON, the preset scanning operation is started when the key is released within 2 sec, while the auto store operation is started when the key is held down over 2 sec.
LOUD LOUD2	LOUDNESS ON/OFF key.
CD	CD auto changer ON key.
T-MODE	In TUNER ON, the UP and DOWN key operation is selected when the key is released within 2 sec., while the DX/LO operation is selected when the key is held down over 2 sec.
UP DOWN	The function changes with each operation of TUNER, CD, and TAPE keys. ○When TUNER ON MANU ON: Manual UP/DOWN MANU OFF: Seek UP/DOWN ○When CD ON When the key is pressed over 1 sec: FF/FB start When the key is pressed within 1 sec: Track UP/DOWN ○When TAPE ON (1) SF-X mechanism: FF/REW start key. SCAN OFF: REW ↔ REW APC FF ↔ FF APC SCAN ON: REW ↔ SCAN REW APC FF ↔ SCAN FF APC (2) RM-4 mechanism: The key is invalid.
M1 REPEAT	○When TUNER ON Preset channel 1 call and write key. ○When CD ON TRACK REPEAT ON/OFF key. ○When TAPE ON (1) SF-X mechanism: REPEAT ON/OFF key. (2) RM-4 mechanism: The key is invalid.
M2 SCAN	○When TUNER ON Preset channel 2 call and write key. ○When CD ON SCAN ON/OFF key. ○When TAPE ON (1) SF-X mechanism: SCAN ON/OFF key. (2) RM-4 mechanism: The key is invalid.
M3 DOL	○When TUNER ON Preset channel 3 call and write key. ○When TAPE ON DOLBY select (ON/OFF) key.
M4 BLS (APC)	○When TUNER ON Preset channel 4 call and write key. ○When TAPE ON (1) SF-X mechanism: BLS (Blank Skip) ON/OFF key. (2) RM-4 mechanism: APC ON/OFF key.
M5 RANDOM (MTL)	○When TUNER ON Preset channel 5 call and write key. ○When CD ON RANDOM PLAY ON/OFF key. ○When TAPE ON (1) SF-X mechanism: The key is invalid. (2) RM-4 mechanism: METAL ON/OFF key.
M6	Preset channel 6 call and write key.
STMONO	ST/MONO selector key.
ILLUMI	Illumination selector key.
RDS	○Push RDS key for less than 2 seconds to shift RDS ON/OFF. ○Push RDS key for more than 2 seconds to shift REG ON/OFF. ○Push M3 key following to RDS key within 2 seconds to display "PTY". ○Push M1 key following to RDS key within 2 seconds to display presently receiving "PI" for 5 seconds.
TP	○Push TP key for less than 2 seconds to shift TP ON/OFF. ○Push TP key for more than 2 seconds to shift into sound volume adjusting mode.

■PARTS LIST:

◎Electrical section

◎MAIN P.W.B

REF.NO.	PART NO.	DESCRIPTION	Q'TY
D609~612	001-0330-00	Diode 1SS119	4
D502	001-0334-00	Diode DSA17B	1
D105,501,601 602,605,606 607,613,614 615	001-0356-00	Diode 1SS184	10
D608	001-0361-10	Diode 1SS198	1
D590	001-0366-00	Diode LTZMR15	1
D101,102	001-0367-00	Diode 1SS226	2
D509,616	001-0423-23	Diode MA4082	2
D103,104,505	001-0423-24	Diode MA4091	3
D503,504 506~508 901,902	001-0466-00	Diode S5688B	7
D603,604	001-0525-00	Diode IMN10	2
IFT102	005-1017-00	IF-transformer	1
IFT101	005-1022-01	IF-transformer MS3GK	1
L502,503	009-0470-03	Choke	2
L501	009-0633-01	Choke	1
L104,105	010-1892-07	Coil 100μH	2
L106	010-2174-35	Coil 820μH	1
L103	010-2174-36	Coil 1mH	1
L101	010-2199-16	Coil 2.2μH	1
L102	010-2199-21	Coil 5.6μH	1
L201	010-2199-40	Coil 220μH	1
VR501	012-3808-07	Variable resistor 22kΩ VR	1
VR301,401	012-4318-06	Variable resistor 10kΩ VR	2
VR201	012-4318-09	Variable resistor 47kΩ VR	1
VR103	012-4318-13	Variable resistor 470kΩ VR	1
VR101,102	012-4863-07	Variable resistor	2
VR105	012-4863-10	Variable resistor 100kΩ VR	1
VR104	012-4863-12	Variable resistor 330kΩ VR	1
R525	032-0084-00	Film resistor 1/4W10Ω	1
C610	042-0200-00	Tantalum capacitor 10V47μF TAN	1
C501,506	042-0417-00	Alumi-electrolytic capacitor 10V220μF	2
C511	042-0428-00	Alumi-electrolytic capacitor 16V2200μF	1
C508	042-0439-00	Alumi-electrolytic capacitor 10V220μF	1
C105,150	043-0229-01	Ceramic chip capacitor 0.068μF	2
C119,139	043-0229-03	Ceramic chip capacitor 0.1μF	2
C512	043-0251-00	Plastic film capacitor 0.1μF	1
CCT601	050-0077-02	Component circuit 10kΩx4	1
CCT602	050-0088-07	Component circuit (CRX111R)	1
	050-0091-05	Component circuit (CRH101R)	
CCT901	050-0090-62	Component circuit 10kΩx10	1
CCT201	050-0101-01	Component circuit 10kΩx11	1
IC604	051-0142-05	IC TC4013BF	1
IC603	051-0160-56	IC HD74LS07FPD	1
IC102	051-0267-05	IC TC4066BF	1
IC202,504,506	051-0556-01	IC NJM2058M	3
IC503	051-0606-01	IC	1
	(051-0606-71)	IC (HIC)	
IC502	051-0619-01	IC LB0354	1
IC205	051-0620-00	IC LA2000C	1
IC301,401	051-0853-01	IC M5201FP	2
IC605	051-0869-05	IC MB3771PF	1
IC505	051-0958-01	IC TA8205AH	1
IC203	051-1144-10	IC LA2231M-B	1
IC204	051-1150-00	IC LC7070NM	1
IC501	051-1157-00	IC DL-BC-01 (CRX111R)	1
	051-1038-01	IC CXA1102M (CRH101R)	
IC606	051-1187-01	IC TA78DL05AP	1
IC902	051-1272-00	IC μPC2410HF	1
IC901	051-1301-20	IC μPD75006GB-539	1
IC103	051-1323-05	IC LC7218M	1
IC101	051-1371-00	IC TA8151F	1
IC602	051-1375-05	IC	1
IC201	051-1380-02	IC μPD75328GC-115	1
IC601	051-1381-02	IC μPD75116GF-699	1
X202	060-0115-02	Ceramic resonator	1
SUP101	060-0122-10	Surge protector	1
X201,601,901	060-0130-01	Ceramic resonator 4.19MHz	3
X203	060-0146-50	Ceramic resonator	1
BPF201	060-0177-00	Band passfilter 57k BPF	1
BPF101	060-0235-00	Band passfilter	1
DC101	060-0236-00	DC-DC-converter 15V	1
X101	060-0240-00	Ceramic resonator	1
X102	061-1066-00	Crystal 7.2MHz	1
Q602,604,618 626,628	100-1150-00	Transistor 2SA1150	5
Q103,203,620 622,901,902	100-1162-00	Transistor 2SA1162	6
Q108	100-1175-00	Transistor 2SA1175	1
Q109	100-1297-00	Transistor 2SA1297	1
Q611,613	100-1298-00	Transistor 2SA1298	2
Q504,505,903 905	100-1431-00	Transistor 2SA1431	4
Q110,509,625	102-1846-00	Transistor 2SC1846	3
Q107,113,616 623,904	102-2712-00	Transistor 2SC2712	5
Q105,111,112 114,115	102-2712-51	Transistor 2SC2712GL	5
Q617	102-3732-00	Transistor 2SC3732	1
Q508	103-1225-00	Transistor 2SD1225	1
Q104 301~304 401~404 501	103-1306-00	Transistor 2SD1306	10
Q106	108-0372-28	FET 2SK372	1
Q201,503,601	125-0002-03	Transistor RN2403	3
Q101,102,116 202,502,506 507,603,605 612,614,615 619,621,624 627,629	125-2004-03	Transistor RN1403	17
Q606~610 906	125-2004-06	Transistor RN1406	6
R154	116-1011-10	Chip resistor 1/8W100Ω	1
R909	116-2721-10	Chip resistor 1/8W2.7kΩ	1
R607~611	116-3311-10	Chip resistor 1/8W330Ω	5
R138,310,328 329,410,428 429	117-1011-10	Chip resistor 1/10W100Ω S	7
R131,134,159 219,309,312 314,332,333 409,412,414 432,433,508 514,602,604 624,628,632 635,644,646	117-1021-10	Chip resistor 1/10W1kΩ S	24
R105,115,124 125,130,142 143,151,205 206,214,215 221,330,331 430,431 503~507 511,512,516 518,520,521 601,603,605 612,614,616 619,620,623 627,629,631 634,636,643 645,647 901~905 908,910,911	117-1031-10	Chip resistor 1/10W10kΩ S	53
R133,152,155 203,209,311 313,411,413 502,626,630	117-1041-10	Chip resistor 1/10W100kΩ S	12
R213,625,639 913	117-1051-10	Chip resistor 1/10W1MΩ S	4
R122,158,307 324,325,407 424,425	117-1521-10	Chip resistor 1/10W1.5kΩ S	8
R302,402	117-1531-10	Chip resistor 1/10W15kΩ S	2
R104,116	117-1831-10	Chip resistor 1/10W18kΩ S	2
R108,114,141 144,157,216 304,306,320 321,326,327 404,406,420 421,426,427	117-2221-10	Chip resistor 1/10W2.2kΩ S	18
R220,308,408 622	117-2231-10	Chip resistor 1/10W22kΩ S	4
R129,137,201 202,207,322 323,422,423	117-2241-10	Chip resistor 1/10W220kΩ S	9
R110	117-2711-10	Chip resistor 1/10W270Ω S	1
R613,615	117-2721-10	Chip resistor 1/10W2.7kΩ S	2
R303,403,501	117-2731-10	Chip resistor 1/10W27kΩ S	3
R118~121 135,145,156 210,211,305 405	117-3321-10	Chip resistor 1/10W3.3kΩ S	11
R111,301,401	117-3331-10	Chip resistor 1/10W33kΩ S	3
R641	117-3341-10	Chip resistor 1/10W330kΩ S	1
R153	117-3921-10	Chip resistor 1/10W3.9kΩ S	1
R217	117-3941-10	Chip resistor 1/10W390kΩ S	1
R390	117-4331-10	Chip resistor 1/10W43kΩ S	1
R101,208,907	117-4701-10	Chip resistor 1/10W47Ω S	3
R606	117-4711-10	Chip resistor 1/10W470Ω S	1
R117,132,148 509,510,591 906	117-4721-10	Chip resistor 1/10W4.7kΩ S	7
R107,113,123 617,618,640	117-4731-10	Chip resistor 1/10W47kΩ S	6
R128,139,590	117-4741-10	Chip resistor 1/10W470kΩ S	3
R126	117-5611-10	Chip resistor 1/10W560Ω S	1
R204,621,633	117-5621-10	Chip resistor 1/10W5.6kΩ S	3
R109	117-6801-10	Chip resistor 1/10W68Ω S	1
R136	117-6811-10	Chip resistor 1/10W680Ω S	1
R103,112,149 642	117-6821-10	Chip resistor 1/10W6.8kΩ S	4
R102,146,212 391,491	117-6831-10	Chip resistor 1/10W68kΩ S	5
R127	117-8221-10	Chip resistor 1/10W8.2kΩ S	1
R106,638	117-8231-10	Chip resistor 1/10W82kΩ S	2
R218	117-8241-10	Chip resistor 1/10W820kΩ S	1
R515	118-1011-10	Chip resistor 1/2W100Ω	1
R140,150	118-5611-10	Chip resistor 1/2W560Ω	2
C318,418	171-2222-06	Ceramic capacitor 2200pF SC	2
C162	172-6832-20	Polyester capacitor 0.068μF SS	1
C320,321,420 421	173-1542-10	Polyester capacitor 0.15μF S	4
C129	176-1007-04	Ceramic chip capacitor 10pF TH TC,S	1
C170~172	176-1012-00	Ceramic chip capacitor 100pF TC,S	3
C167~169	176-1802-00	Ceramic chip capacitor 18pF CH TC,S	3
C190	176-2212-00	Ceramic chip capacitor 220pF TC,S	1
C164,229,230	177-3332-05	Ceramic chip capacitor 0.033μF HD	3
C115	177-3932-05	Ceramic chip capacitor 0.039μF HD	1
C107,127,128 135,136,154 156,158,166	177-4732-05	Ceramic chip capacitor 0.047μF HD	9
C124,149,152 208,219,302 304,402,404 606	178-1022-05	Ceramic chip capacitor 1000pF HD,S	10
C104,106,109 111,122,123 131,141,163 173,209,210 212~215 221,601,604 607,609,611 903,907,909	178-1032-05	Ceramic chip capacitor 0.01μF HD,S	25
C138	178-2222-05	Ceramic chip capacitor 2200pF HD,S	1
C101,140,228	178-2232-05	Ceramic chip capacitor 0.022μF HD,S	3
C125,126	178-2722-05	Ceramic chip capacitor 2700pF HD,S	2
C144,202	178-3312-05	Ceramic chip capacitor 330pF HD,S	2
C218,220	178-3322-05	Ceramic chip capacitor 3300pF HD,S	2
C118,133,390 490	178-4712-05	Ceramic chip capacitor 470pF HD,S	4
C103,145	178-4722-05	Ceramic chip capacitor 4700pF HD,S	2
C231	178-6822-05	Ceramic chip capacitor 6800pF HD,S	1
C307,407,515	179-2273-23	Electrolytic capacitor 10V220μF S	3
C513	179-2273-33	Electrolytic capacitor 16V220μF S	1
C113,157,159 161,392,516 603	182-1073-22	Electrolytic capacitor 10V100μF SS	7
C518,906	182-1073-32	Electrolytic capacitor 16V100μF SS	2
C317,417	182-2256-52	Electrolytic capacitor 35V2.2μF NP SS	2
C328,428	182-4756-32	Electrolytic capacitor 16V4.7μF NP SS	2
C155	182-4763-42	Electrolytic capacitor 25V47μF SS	1
C201	183-1043-62	Electrolytic capacitor 50V0.1μF USS	1
C114,137,142 143,148,203 204,206,326 327,426,427 509,908	183-1053-62	Electrolytic capacitor 50V1μF USS	14
C110,112,116 117,132,134 160,205,211 222,306,309 312,406,409 412,502,505 514,591,595 602,605,902 904,910	183-1063-32	Electrolytic capacitor 16V10μF USS	26
C216	183-1073-12	Electrolytic capacitor 6.3V100μF USS	1
C310,410	183-2243-62	Electrolytic capacitor 50V0.22μF USS	2
C130	183-2253-62	Electrolytic capacitor 50V2.2μF USS	1
C507	183-2263-12	Electrolytic capacitor 6.3V22μF USS	1
C217,224,319 419,612	183-2263-32	Electrolytic capacitor 16V22μF USS	5
C207	183-3363-22	Electrolytic capacitor 10V33μF USS	1
C153,905	183-3363-42	Electrolytic capacitor 25V33μF USS	2
C120,121	183-4743-62	Electrolytic capacitor 50V0 47μF USS	2

REF.NO.	PART NO.	DESCRIPTION	Q'TY
165,223,301 303,305,308 311 313~316 C322,323,401 403,405,408 411 413~416 422,423,590	183-4753-52	Electrolytic capacitor 35V4.7μF USS	25

REF.NO.	PART NO.	DESCRIPTION	Q'TY
C147,174,225 226,227,510	183-4763-12	Electrolytic capacitor 6.3V47μF USS	6
102,108,324 C325,424,425 503,504	183-4763-32	Electrolytic capacitor 16V47μF USS	8
C391,491	183-6843-62	Electrolytic capacitor 50V0.68μF USS	2

◎ESCUTCHEON P.W.B

REF.NO.	PART NO.	DESCRIPTION	Q'TY
D711	001-0459-01	Diode GL9HD44	1
IC701	051-1151-00	IC μPD7225G	1
R701	117-1841-10	Chip resistor 1/10W180kΩ S	1

REF.NO.	PART NO.	DESCRIPTION	Q'TY
R702~704	117-3321-10	Chip resistor 1/10W3.3kΩ S	3
C701,702	178-1032-05	Ceramic chip capacitor 0.01μF HD,S	2

■TAPE MECHANISM ELECTRICAL SECTION

◎PRE-P.W.B

REF.NO.	PART NO.	DESCRIPTION	Q'TY
IC2	051-0620-00	IC LA2000	1
IC1	051-0714-01	IC TA7705F	1
Q1	102-3402-00	Transistor 2SC3402	1
R5,9,18	116-1011-10	Chip resistor 1/8W100Ω	3
R19	116-1541-10	Chip resistor 1/8W150kΩ	1
R14	117-1031-10	Chip resistor 1/10W10kΩ S	1
R7,11	117-1131-10	Chip resistor 1/10W11kΩ S	2
R8,10	117-1531-10	Chip resistor 1/10W15kΩ S	2
R1~4	117-3331-10	Chip resistor 1/10W33kΩ S	4
R12	117-3341-10	Chip resistor 1/10W330kΩ S	1

REF.NO.	PART NO.	DESCRIPTION	Q'TY
C15	172-3332-20	Polyester capacitor 0.033μF SS	1
C6,9	173-1231-10	Polyester capacitor 0.012μF S	2
C12	173-4721-10	Polyester capacitor 4700pF S	1
C1~4	173-5611-10	Polyester capacitor 560pF S	4
C14	183-1053-62	Electrolytic capacitor 50V1μF USS	1
C7	183-1063-32	Electrolytic capacitor 16V10μF USS	1
C13	183-4743-62	Electrolytic capacitor 50V0.47μF USS	1
C10,11	183-4753-52	Electrolytic capacitor 35V4.7μF USS	2
C5,8	183-4763-12	Electrolytic capacitor 6.3V47μF USS	2
C16	183-4763-32	Electrolytic capacitor 16V47μF USS	1

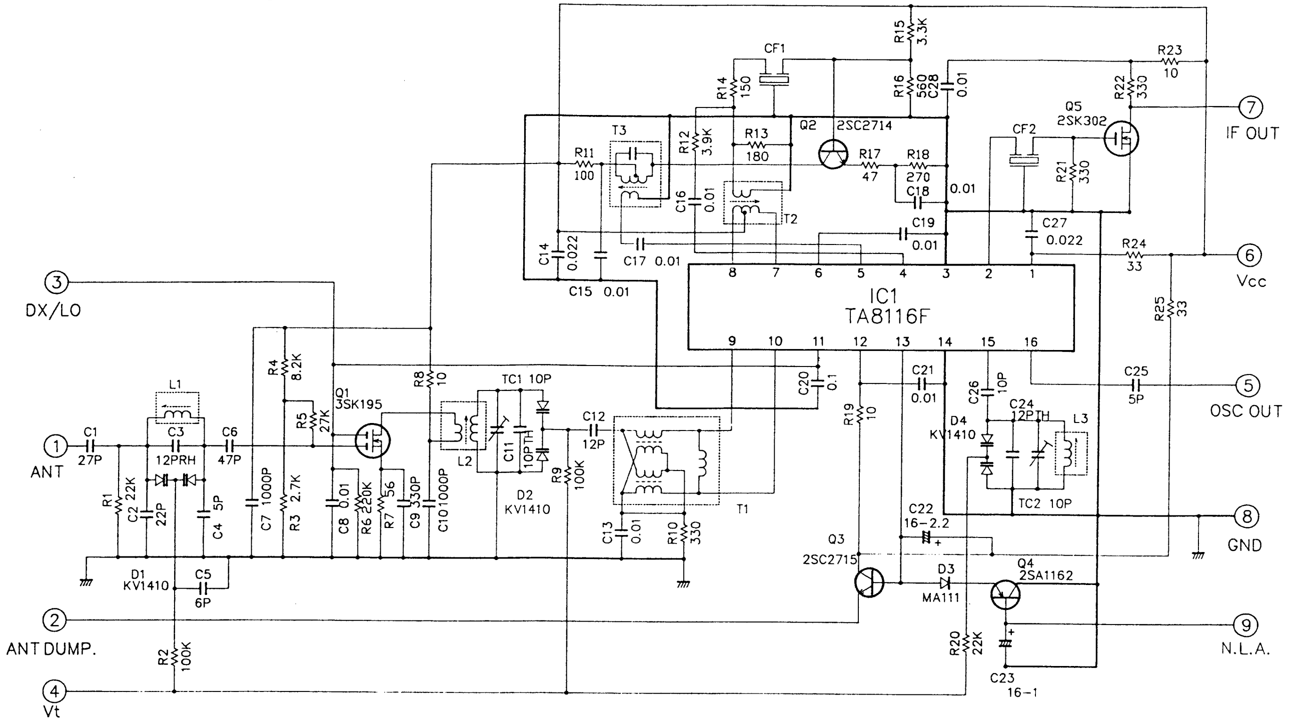
◎BOTTOM-P.W.B

REF.NO.	PART NO.	DESCRIPTION	Q'TY
SW4	013-3862-00	Switch	1
SW1,2	013-3863-00	Switch	2

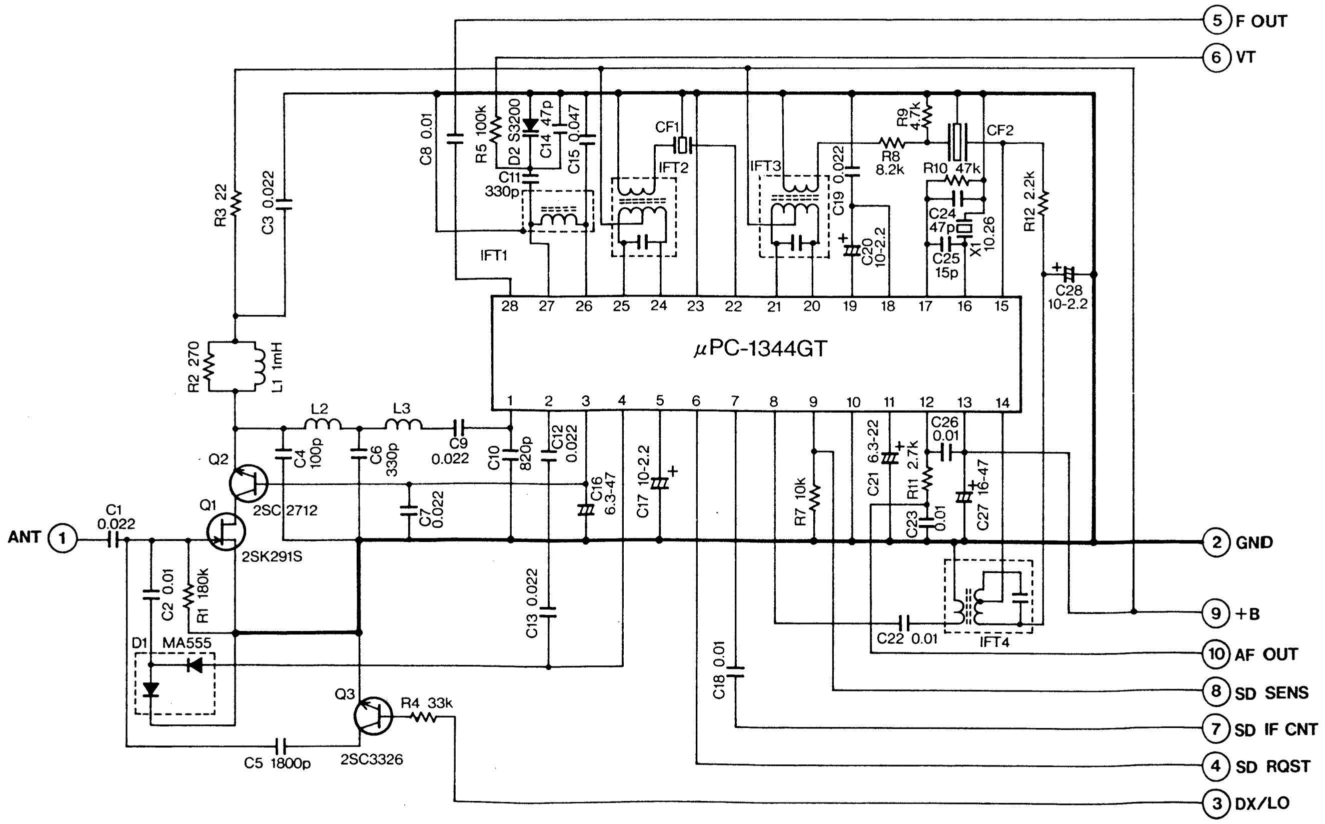
REF.NO.	PART NO.	DESCRIPTION	Q'TY
SW3	013-3863-01	Switch	1
IC3,4	051-1114-00	IC NJL5161K	2

NOTE :			
OM	(Oxidized Metal)	SS	(Super Small)
S	(Small)	TC	(Temperature-Compensating)
HD	(Higher Dielectric)	LL	(Low Leak)
SC	(Semi-Conductor)	USS	(Ultra Super Small)

■FM TUNER PACK: 880-1418A

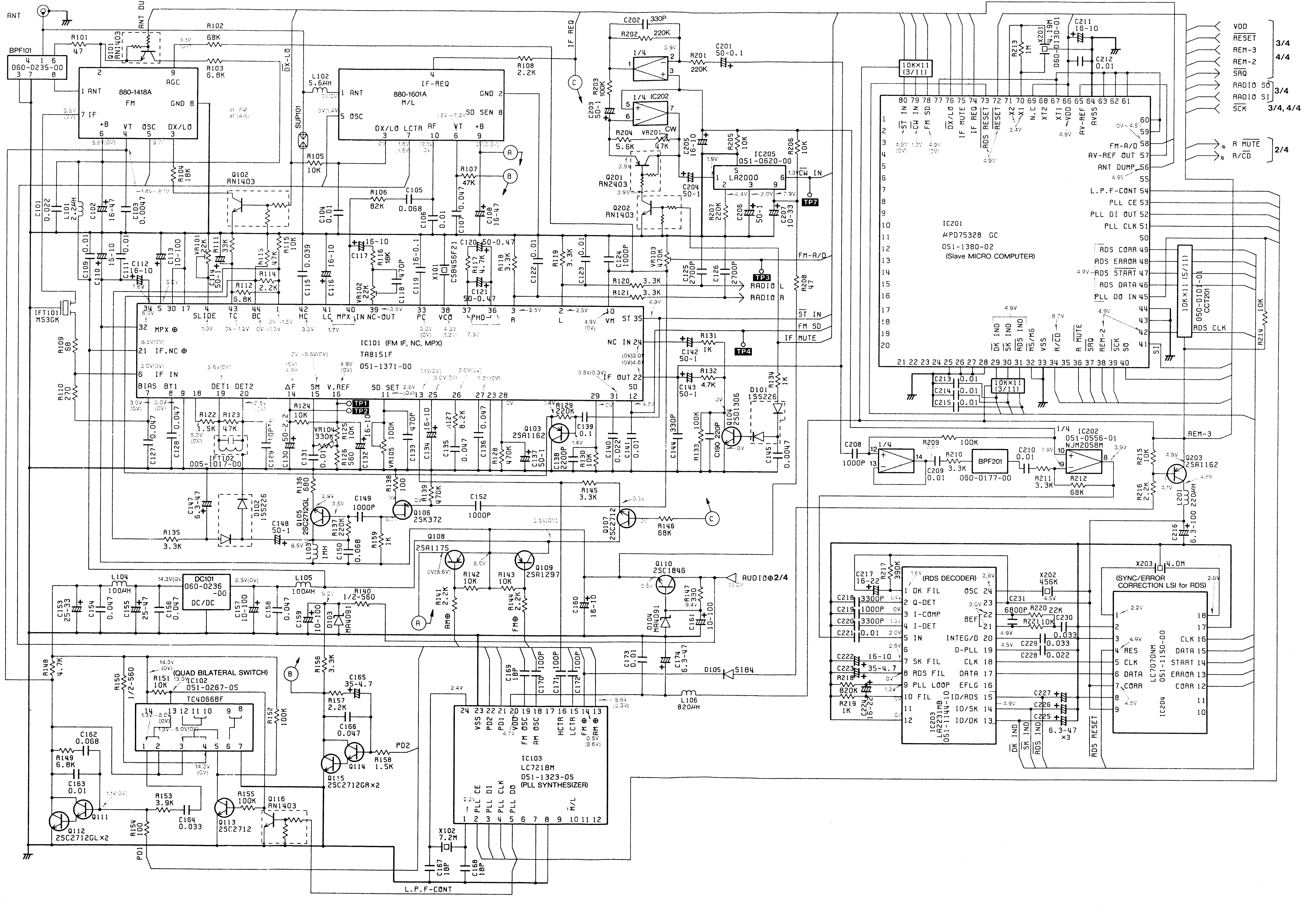

IC1
TA8116F
① ANT
② ANT DUMP.
③ DX/LO
④ Vt
⑤ OSC OUT
⑥ Vcc
⑦ IF OUT
⑧ GND
⑨ N.L.A.
Q1 3SK195
Q2 2SC2714
Q3 2SC2715
Q4 2SA1162
Q5 2SK302
D1 KV1410
D2 KV1410
D3 MA111
D4 KV1410
CF1
CF2
T1
T2
T3
L1
L2
L3
TC1 10P
TC2 10P
C1 27P
C2 22P
C3 12PRH
C4 5P
C5 6P
C6 47P
C7 1000P
C8 0.01
C9 330P
C10 1000P
C11 10PTH
C12 12P
C13 0.01
C14 0.022
C15 0.01
C16 0.01
C17 0.01
C18 0.01
C19 0.01
C20 0.1
C21 0.01
C22 16-2.2
C23 16-1
C24 12PTH
C25 5P
C26 10P
C27 0.022
C28 0.01
R1 22K
R2 100K
R3 2.7K
R4 8.2K
R5 27K
R6 220K
R7 56
R8 10
R9 100K
R10 330
R11 100
R12 3.9K
R13 180
R14 150
R15 3.3K
R16 560
R17 47
R18 270
R19 10
R20 22K
R21 330
R22 330
R23 10
R24 33
R25 33

■MW/LW TUNER PACK: 880-1601A


μPC-1344GT
ANT ①
② GND
③ DX/LO
④ SD RQST
⑤ F OUT
⑥ VT
⑦ SD IF CNT
⑧ SD SENS
⑨ +B
⑩ AF OUT
Q1 2SK291S
Q2 2SC2712
Q3 2SC3326
D1 MA555
D2 S3200
IFT1
IFT2
IFT3
IFT4
CF1
CF2
X1 10.26
L1 1mH
L2
L3
C1 0.022
C2 0.01
C3 0.022
C4 100p
C5 1800p
C6 330p
C7 0.022
C8 0.01
C9 0.022
C10 820p
C11 330p
C12 0.022
C13 0.022
C14 47p
C15 0.047
C16 6.3-47
C17 10-2.2
C18 0.01
C19 0.022
C20 10-2.2
C21 6.3-22
C22 0.01
C23 0.01
C24 47p
C25 15p
C26 0.01
C27 16-47
C28 10-2.2
R1 180k
R2 270
R3 22
R4 33k
R5 100k
R7 10k
R8 8.2k
R9 4.7k
R10 47k
R11 2.7k
R12 2.2k

■CIRCUIT DIAGRAM: 1/4

◎CRX111R


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
ANT
BPF101
060-0235-00
ANT DUMP
Q101 RN1403
R101 47
R102 68K
R103 6.8K
880-1418A
FM
1 ANT
AGC
GND 8
7 IF
+B
VT
OSC
DX/LO
DX-LO
L102 5.6μH
880-1601A
M/L
IF-REQ
1 ANT
5 OSC
GND 2
SD SEN 8
DX/LO LCTR
AF
VT
+B
SUP101
R108 2.2K
IF REQ
C202 330P
R202 220K
R201 220K
C201 50-0.1
1/4 IC202
R203 100K
C203 50-1
R204 5.6K
VR201 47K
CW
R205 10K
C205 16-10
R206 10K
IC205
051-0620-00
LA2000
CW IN
TP7
C204 50-1
Q201 RN2403
Q202 RN1403
R207 220K
C206 50-1
C207 10-33
R104 18K
Q102 RN1403
R105 10K
R106 82K
C105 0.068
R107 47K
C108 16-47
C101 0.022
L101 2.2μH
C102 16-47
C103 0.0047
C104 0.01
C106 0.01
C107 0.047
IFT101 MS3GK
R109 68
R110 270
C109 0.01
C110 15-10
C111 0.01
C112 16-10
C113 10-100
VR101 22K
R111 33K
C114 50-1
R112 6.8K
R113 47K
R114 2.2K
R115 10K
C115 0.039
C116 16-10
C117 16-10
VR102 22K
R116 18K
C118 470P
C119 16-0.1
X101 CSB456F21
C120 50-0.47
R117 4.7K
C121 50-0.47
R118 3.3K
C122 0.01
R119 3.3K
C123 0.01
C124 1000P
VR103 470K
C125 2700P
C126 2700P
TP3
R120 3.3K
R121 3.3K
RADIO L
RADIO R
R208 47
FM-A/D
ST IN
FM SD
IF MUTE
IC101 (FM IF, NC, MPX)
TA8151F
051-1371-00
MPX ⊕
IF.NC ⊕
IF IN
BIAS
BY1
DET1
DET2
ΔF
SM
V.REF
SD SET
SLIDE
TC
BC
HC
LC
MPX IN
NC-OUT
PC
VCO
PHD
R
L
VM
ST
NC IN
IF OUT
SD
R131 1K
C142 50-1
TP4
R132 4.7K
C143 50-1
R134 1K
D101 1SS226
C127 0.047
C128 0.047
R122 1.5K
R123 47K
IFT102
005-1017-00
C129 10P
C130 50-2.2
R124 10K
TP1
TP2
VR104 330K
R125 10K
R126 560
C131 0.01
C132 16-1
VR105 100K
C133 470P
C134 16-10
C135 0.047
R127 8.2K
C136 0.047
R128 470K
C137 50-1
R129 220K
Q103 2SA1162
C138 2200P
R130 10K
C139 0.1
C140 0.022
C141 0.01
C144 330P
R133 100K
C190 220P
Q104 2SD1306
C145 0.0047
C147 6.3-47
D102 1SS226
R135 3.3K
C148 50-1
R136 680
Q105 2SC2712GL
C149 1000P
R137 220K
L103 1MH
C150 0.068
R159 1K
R138 100
Q106 2SK372
R139 470K
C152 1000P
R145 3.3K
Q107 2SC2712
R146 68K
Q108 2SA1175
Q109 2SA1297
R141 2.2K
R142 10K
R143 10K
R144 2.2K
AM⊕
FM⊕
Q110 2SC1846
AUDIO⊕2/4
R147 330
C160 16-10
C161 10-100
D104 MA4091
L104 100μH
DC101
060-0236-00
DC/DC
L105 100μH
R140 1/2-560
C153 25-33
C154 0.047
C155 25-47
C156 0.047
C157 10-100
C158 0.047
C159 10-100
D103 MA4091
R148 4.7K
R150 1/2-560
R151 10K
(QUAD BILATERAL SWITCH)
IC102
051-0267-05
TC4066BF
R152 100K
R156 3.3K
C165 35-4.7
R157 2.2K
C166 0.047
Q114
Q115 2SC2712GR×2
R158 1.5K
PD2
C162 0.068
R149 6.8K
C163 0.01
Q111
Q112 2SC2712GL×2
R153 3.9K
C164 0.033
R154 100
PD1
Q113 2SC2712
R155 100K
Q116 RN1403
C169 18P
C170 100P
C171 100P
C172 100P
C173 0.01
C174 6.3-47
D105 S184
L106 820μH
IC103
LC7218M
051-1323-05
(PLL SYNTHESIZER)
VSS
PD2
PD1
VDD
FM OSC
AM OSC
HCTR
LCTR
FM ⊕
AM ⊕
PLL CE
PLL DI
PLL CLK
PLL DO
M/L
X102 7.2M
C167 18P
C168 18P
L.P.F-CONT
10K×11 (3/11)
R213 1M
X201 4.19M
060-0130-01
C211 16-10
C212 0.01
VDD
RESET
REM-3
REM-2
SRQ
RADIO SO
RADIO SI
SCK
3/4
4/4
3/4
3/4, 4/4
R MUTE
R/CD
2/4
IC201
μPD75328 GC
051-1380-02
(Slave MICRO COMPUTER)
ST IN
CW IN
FM SD
DX/LO
IF MUTE
IF REQ
RDS RESET
RESET
X2
X1
N.C
XT2
XT1
VDD
AV-REF
AVSS
FM-A/D
AV-REF OUT
ANT DUMP
L.P.F-CONT
PLL CE
PLL DI OUT
PLL CLK
RDS CORR
RDS ERROR
RDS START
RDS DATA
PLL DO IN
DK IND
SK IND
RDS IND
MS/M6
VSS
R/CD
R MUTE
SRQ
REM-2
SCK
SO
SI
RDS CLK
10K×11 (5/11)
050-0101-01
CCT201
R214 10K
C213 0.01
C214 0.01
C215 0.01
10K×11 (3/11)
C208 1000P
1/4
R209 100K
R210 3.3K
C209 0.01
BPF201
060-0177-00
C210 0.01
R211 3.3K
R212 68K
1/4 IC202
051-0556-01
NJM2058M
R215 10K
R216 2.2K
Q203 2SA1162
L201 220μH
REM-3
C216 6.3-100
C217 16-22
R217 390K
(RDS DECODER)
IC203
LA2231MB
051-1144-00
DK FIL
Q-DET
I-COMP
I-DET
IN
SK FIL
RDS FIL
PLL LOOP
FIL
OSC
BEF
INTEG/D
D-PLL
CLK
DATA
EFLG
ID/RDS
ID/SK
ID/DK
C218 3300P
C219 1000P
C220 3300P
C221 0.01
C222 16-10
C223 35-4.7
R218 820K
R219 1K
C224 16-22
X202 456K
C231 6800P
R220 22K
R221 10K
C230 0.033
C229 0.033
C228 0.022
C227
C226
C225
6.3-47 ×3
DK IND
SK IND
RDS IND
RDS RESET
X203 4.0M
(SYNC/ERROR CORRECTION LSI for RDS)
IC204
LC7070NM
051-1150-00
RES
CLK
DATA
CORR
CLK
DATA
START
ERROR
CORR

■CIRCUIT DIAGRAM: 2/4

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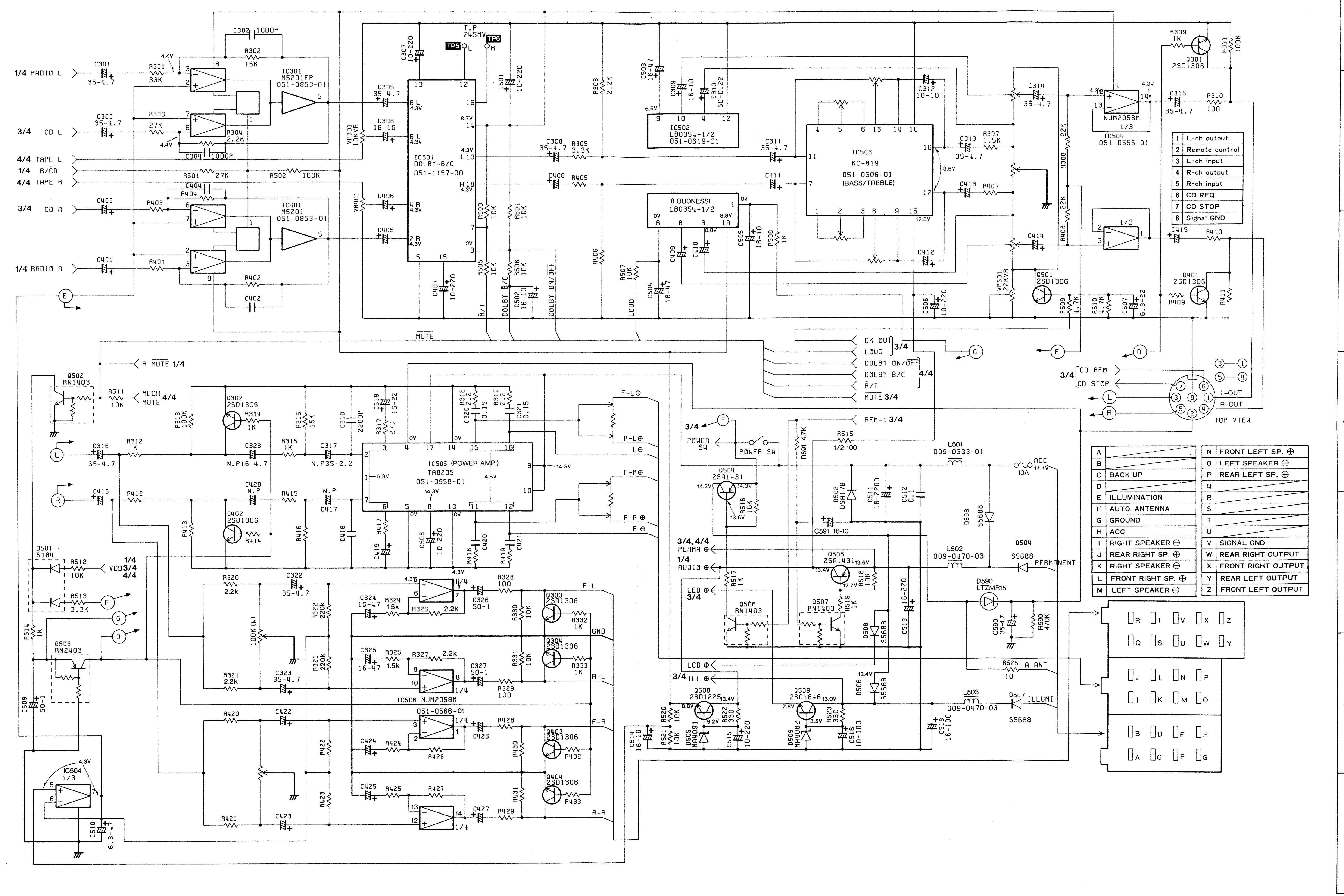
1/4 RADIO L
3/4 CD L
4/4 TAPE L
1/4 R/CD
4/4 TAPE R
3/4 CD R
1/4 RADIO R
C301 35-4.7
R301 33K
C302 1000P
R302 15K
IC301 M5201FP 051-0853-01
C303 35-4.7
R303 27K
R304 2.2K
C304 1000P
R501 27K
R502 100K
C404
R404
C403
R403
IC401 M5201 051-0853-01
C401
R401
R402
C402
T.P 245MV
TP5 L
TP6 R
C307 10-220
C305 35-4.7
C306 16-10
VR301 10KVR
VR401
C406
C405
IC501 DOLBY-B/C 051-1157-00
C501 10-220
R503 10K
R504 10K
R505 10K
R506 10K
C407 10-220
C502 16-10
R/T
DOLBY B/C
DOLBY ON/OFF
MUTE
C308 35-4.7
R305 3.3K
C408
R405
R306 2.2K
R406
R507 10K
LOUD
C503 16-47
C309 16-10
C310 50-0.22
IC502 LB0354-1/2 051-0619-01
(LOUDNESS) LB0354-1/2
C504 16-47
C409
C410
C505 16-10
R508 1K
C311 35-4.7
C411
IC503 KC-819 051-0606-01 (BASS/TREBLE)
C312 16-10
C412
C506 10-220
C313 35-4.7
R307 1.5K
C413
R407
C314 35-4.7
R308 22K
R408 22K
C414
VR501 22KVA
Q501 2SD1306
R509 4.7K
R510 4.7K
C507 6.3-22
IC504 NJM2058M 1/3 051-0556-01
C315 35-4.7
R310 100
R309 1K
Q301 2SD1306
R311 100K
C415
R410
Q401 2SD1306
R409
R411
DK OUT
LOUD
DOLBY ON/OFF
DOLBY B/C
R/T
MUTE 3/4
3/4 CD REM
CD STOP
L-OUT
R-OUT
TOP VIEW
R MUTE 1/4
Q502 RN1403
R511 10K
MECH MUTE 4/4
R313 100K
Q302 2SD1306
R314 1K
R316 15K
C318 2200P
C319 16-22
R317 270
R318 2.2
R319 2.2
C320 0.15
C321 0.15
C316 35-4.7
R312 1K
C328 N.P16-4.7
R315 1K
C317 N.P35-2.2
IC505 (POWER AMP.) TA8205 051-0958-01
C416
R412
C428 N.P
R415
C417 N.P
Q402 2SD1306
R413
R414
R416
C418
R417
C419
C508 10-220
R418
C420
R419
C421
F-L⊕
R-L⊕
L⊖
F-R⊕
R-R⊕
R⊖
D501 S184
R512 10K
1/4 VDD 3/4 4/4
R513 3.3K
R514 1K
Q503 RN2403
C509 50-1
R320 2.2k
C322 35-4.7
R321 2.2k
C323 35-4.7
100K(W)
R322 220K
R323 220K
C324 16-47
R324 1.5k
R326 2.2k
C326 50-1
R328 100
Q303 2SD1306
R330 10K
R332 1K
C325 16-47
R325 1.5k
R327 2.2k
C327 50-1
R329 100
IC506 NJM2058M
Q304 2SD1306
R331 10K
R333 1K
GND
F-L
R-L
F-R
R-R
R420
C422
051-0566-01
R428
C426
R422
C424
R424
R426
R430
Q403 2SD1306
R432
R423
C425
R425
R427
C427
R429
R431
Q404 2SD1306
R433
R421
C423
IC504 1/3
C510 6.3-47
3/4 F
POWER SW
REM-1 3/4
R591 4.7K
R515 1/2-100
L501 009-0633-01
ACC 10A
Q504 2SA1431
R516 10K
D502 DSA178
C511 16-2200
C512 0.1
D503 S5688
C591 16-10
3/4, 4/4 PERMA ⊕
1/4 AUDIO ⊕
LED 3/4
L502 009-0470-03
D504 S5688
PERMANENT
Q505 2SA1431
R517 1K
R518 10K
C513 16-220
D590 LTZMR15
C590 35-4.7
R590 470K
Q506 RN1403
Q507 RN1403
R519 1K
D508 S5688
LCD ⊕
3/4 ILL ⊕
R525 10
A ANT
D506 S5688
L503 009-0470-03
D507 S5688
ILLUMI
Q508 2SD1225
Q509 2SC1846
R520 10K
R521 10K
C514 16-10
D505 MA4091
R522 330
C515 10-220
D509 MA4082
R523 330
C516 10-100
C518 16-100

1	L-ch output
2	Remote control
3	L-ch input
4	R-ch output
5	R-ch input
6	CD REQ
7	CD STOP
8	Signal GND

A		N	FRONT LEFT SP. ⊕
B		O	LEFT SPEAKER ⊖
C	BACK UP	P	REAR LEFT SP. ⊕
D		Q	
E	ILLUMINATION	R	
F	AUTO. ANTENNA	S	
G	GROUND	T	
H	ACC	U	
I	RIGHT SPEAKER ⊖	V	SIGNAL GND
J	REAR RIGHT SP. ⊕	W	REAR RIGHT OUTPUT
K	RIGHT SPEAKER ⊖	X	FRONT RIGHT OUTPUT
L	FRONT RIGHT SP. ⊕	Y	REAR LEFT OUTPUT
M	LEFT SPEAKER ⊖	Z	FRONT LEFT OUTPUT

■CIRCUIT DIAGRAM: 3/4

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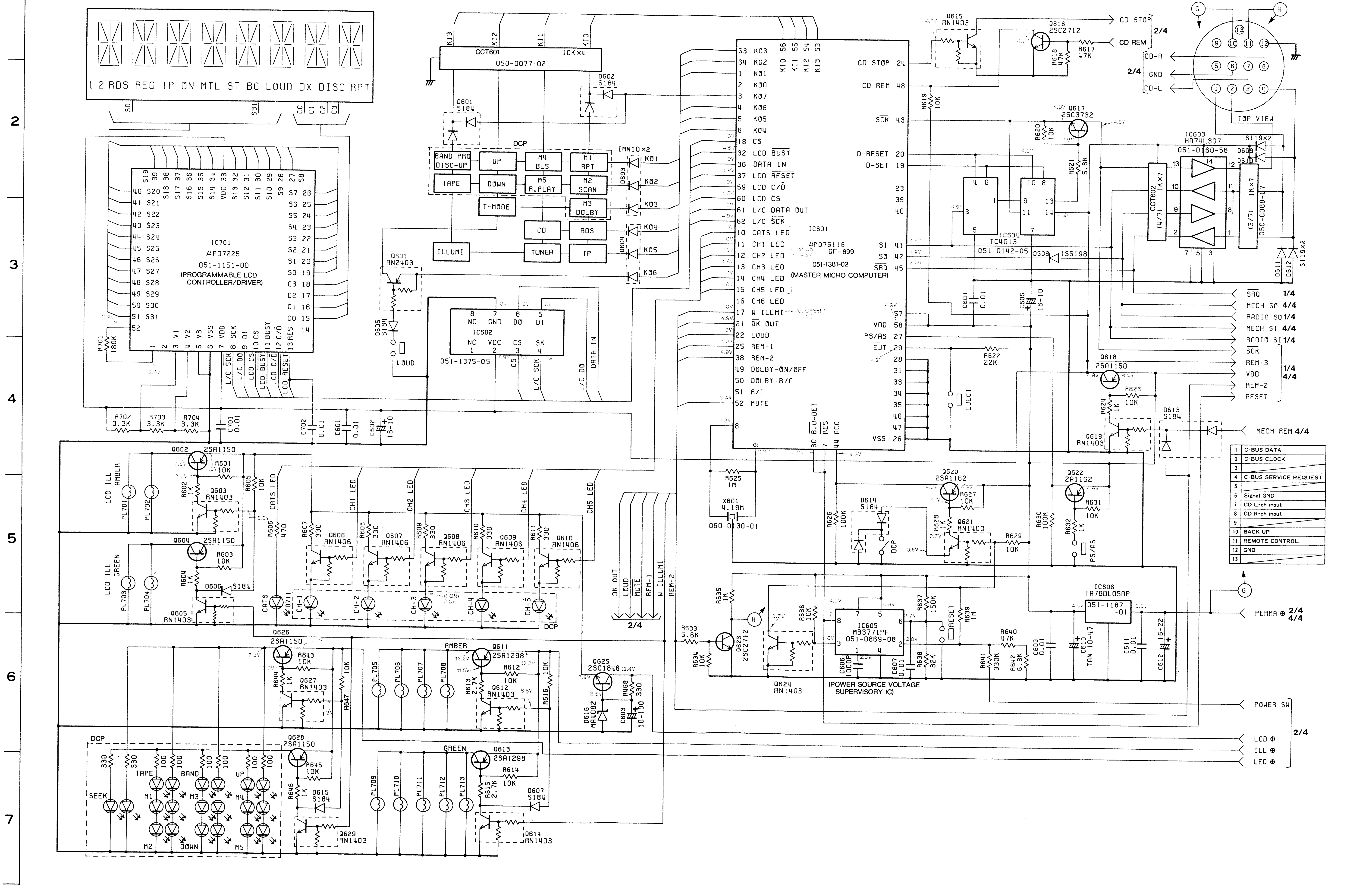

1 2 RDS REG TP ON MTL ST BC LOUD DX DISC RPT
IC701
μPD7225
051-1151-00
(PROGRAMMABLE LCD CONTROLLER/DRIVER)
R701 180K
R702 3.3K
R703 3.3K
R704 3.3K
C701 0.01
C702 0.01
C601 0.01
C602 16-10
CCT601 10K×4
050-0077-02
D601 S184
D602 S184
DCP
BAND PRG DISC-UP
UP
M4 BLS
M1 RPT
TAPE
DOWN
M5 R.PLAY
M2 SCAN
T-MODE
M3 DOLBY
CD
RDS
ILLUMI
TUNER
TP
IMN10×2
D603
D604
K01
K02
K03
K04
K05
K06
Q601 RN2403
D605 S184
LOUD
IC602
051-1375-05
IC601
μPD75116
GF-699
051-1381-02
(MASTER MICRO COMPUTER)
CD STOP
CD REM
SCK
D-RESET
D-SET
SI
SO
SRQ
VDD
PS/AS
EJT
VSS
B.U-DET
RES
ACC
Q615 RN1403
Q616 2SC2712
R617 47K
R618 47K
R619 10K
Q617 2SC3732
R620 10K
R621 5.6K
IC604
TC4013
051-0142-05
D608 1SS198
IC603
HD74LS07
051-0160-56
CCT602 1K×7 (4/7)
1K×7 (3/7) 050-0088-47
S119×2
D609
D610
D611
D612
TOP VIEW
CD-R
GND
CD-L
C604 0.01
C605 16-10
R622 22K
EJECT
SRQ 1/4
MECH SO 4/4
RADIO SO 1/4
MECH SI 4/4
RADIO SI 1/4
SCK
REM-3
VDD 1/4 4/4
REM-2
RESET
Q618 2SA1150
R623 10K
R624 1K
Q619 RN1403
D613 S184
MECH REM 4/4
Q602 2SA1150
R601 10K
R602 1K
Q603 RN1403
R605 10K
LCD ILL AMBER
PL701
PL702
Q604 2SA1150
R603 10K
R604 1K
D606 S184
LCD ILL GREEN
PL703
PL704
Q605 RN1403
CATS LED
CH1 LED
CH2 LED
CH3 LED
CH4 LED
CH5 LED
R606 470
R607 330
R608 330
R609 330
R610 330
R611 330
Q606 RN1406
Q607 RN1406
Q608 RN1406
Q609 RN1406
Q610 RN1406
CATS
D711
CH-1
CH-2
CH-3
CH-4
CH-5
DK OUT
LOUD
MUTE
REM-1
W ILLUMI
REM-2
2/4
R625 1M
X601 4.19M
060-0130-01
R626 100K
D614 S184
DCP
Q620 2SA1162
R627 10K
R628 1K
Q621 RN1403
R629 10K
Q622 2SA1162
R630 100K
R631 10K
R632 1K
PS/AS
IC606
TA78DL05AP
051-1187-01
PERMA ⊕ 2/4 4/4
R635 1K
R633 5.6K
R634 10K
Q623 2SC2712
Q624 RN1403
R636 10K
IC605
MB3771PF
051-0869-08
(POWER SOURCE VOLTAGE SUPERVISORY IC)
C606 1000P
C607 0.01
R637 150K
R638 82K
RESET
R639 1M
R640 47K
R641 330K
R642 6.8K
C609 0.01
C610 TAN 10-47
C611 0.01
C612 16-22
POWER SW
LCD ⊕
ILL ⊕
LED ⊕
2/4
Q626 2SA1150
R643 10K
R644 1K
Q627 RN1403
R647 10K
AMBER
Q611 2SA1298
R612 10K
R613 2.7K
Q612 RN1403
R616 10K
PL705
PL706
PL707
PL708
Q625 2SC1846
R468 330
D616 MA4082
C603 10-100
DCP
SEEK
TAPE
BAND
UP
M1
M3
M4
M2
DOWN
M5
Q628 2SA1150
R645 10K
R646 1K
D615 S184
Q629 RN1403
GREEN
Q613 2SA1298
R614 10K
R615 2.7K
D607 S184
Q614 RN1403
PL709
PL710
PL711
PL712
PL713

1	C-BUS DATA
2	C-BUS CLOCK
3	
4	C-BUS SERVICE REQUEST
5	
6	Signal GND
7	CD L-ch input
8	CD R-ch input
9	
10	BACK UP
11	REMOTE CONTROL
12	GND
13	

■CIRCUIT DIAGRAM: 4/4

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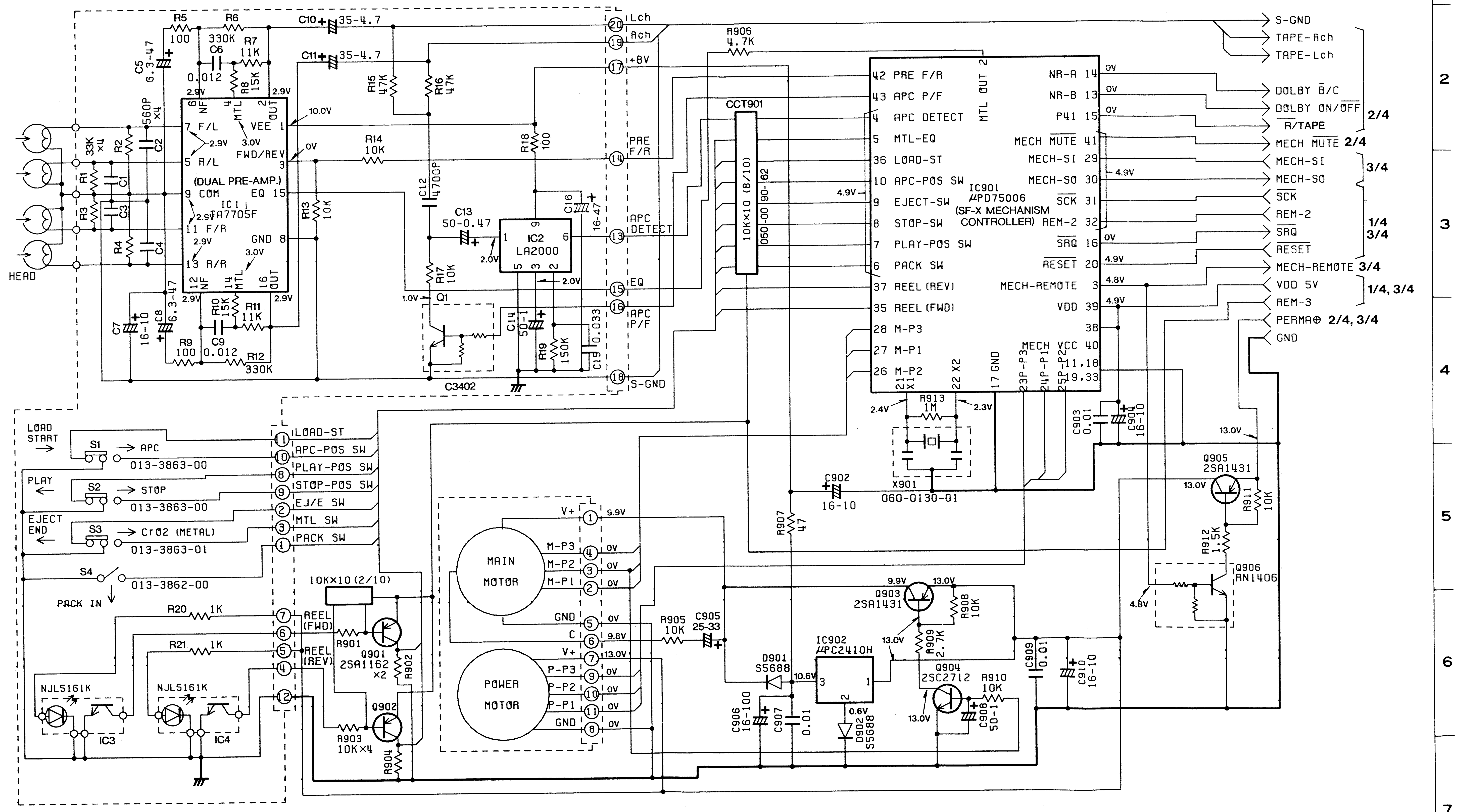

A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
HEAD
R5 100
R6 330K
C6 0.012
R7 11K
R8 15K
C5 6.3-47
560P ×4
33K ×4
R1
R2
R3
R4
C1
C2
C3
C4
7 F/L
5 R/L
9 COM
11 F/R
13 R/R
6 NF
4 MTL
2 OUT
VEE 1
FWD/REV 3
EQ 15
GND 8
12 NF
14 MTL
16 OUT
(DUAL PRE-AMP.)
IC1 TA7705F
2.9V
3.0V
10.0V
0V
C7 16-10
C8 6.3-47
R9 100
C9 0.012
R10 15K
R11 11K
R12 330K
C10 35-4.7
C11 35-4.7
R13 10K
R14 10K
R15 47K
R16 47K
R18 100
C12 4700P
C13 50-0.47
IC2 LA2000
C16 16-47
R17 10K
Q1
C14 50-1
R19 150K
C19 0.033
C3402
1.0V
2.0V
⑳ Lch
⑲ Rch
⑰ +8V
⑭ PRE F/R
⑬ APC DETECT
⑮ EQ
⑯ APC P/F
⑱ S-GND
R906 4.7K
CCT901
10K×10 (8/10)
050-00 90-62
4.9V
IC901 μPD75006 (SF-X MECHANISM CONTROLLER)
42 PRE F/R
43 APC P/F
4 APC DETECT
5 MTL-EQ
36 LOAD-ST
10 APC-POS SW
9 EJECT-SW
8 STOP-SW
7 PLAY-POS SW
6 PACK SW
37 REEL (REV)
35 REEL (FWD)
28 M-P3
27 M-P1
26 M-P2
MTL OUT 2
NR-A 14
NR-B 13
P41 15
MECH MUTE 41
MECH-SI 29
MECH-SO 30
SCK 31
REM-2 32
SRQ 16
RESET 20
MECH-REMOTE 3
VDD 39
38
MECH VCC 40
11.18
19.33
21 X1
22 X2
17 GND
23P-P3
24P-P1
25P-P2
0V
4.8V
4.9V
2.4V
2.3V
R913 1M
X901 060-0130-01
C903 0.01
C904 16-10
C902 16-10
R907 47
S-GND
TAPE-Rch
TAPE-Lch
DOLBY B/C
DOLBY ON/OFF
R/TAPE
2/4
MECH MUTE 2/4
MECH-SI
MECH-SO
SCK
REM-2
SRQ
RESET
3/4
1/4
3/4
MECH-REMOTE 3/4
VDD 5V
REM-3
1/4, 3/4
PERMA⊕ 2/4, 3/4
GND
13.0V
Q905 2SA1431
R911 10K
R912 1.5K
Q906 RN1406
4.8V
LOAD START
S1
→ APC
013-3863-00
PLAY
S2
→ STOP
013-3863-00
EJECT END
S3
→ CrO2 (METAL)
013-3863-01
S4
013-3862-00
PACK IN
R20 1K
R21 1K
NJL5161K
NJL5161K
IC3
IC4
① LOAD-ST
⑩ APC-POS SW
⑧ PLAY-POS SW
⑨ STOP-POS SW
② EJ/E SW
③ MTL SW
① PACK SW
⑦ REEL (FWD)
⑥
⑤ REEL (REV)
④
⑫
10K×10 (2/10)
R901
Q901 2SA1162 ×2
R902
Q902
R903 10K×4
R904
MAIN MOTOR
POWER MOTOR
V+ ① 9.9V
M-P3 ④ 0V
M-P2 ③ 0V
M-P1 ② 0V
GND ⑤ 0V
C ⑥ 9.8V
V+ ⑦ 13.0V
P-P3 ⑨ 0V
P-P2 ⑩ 0V
P-P1 ⑪ 0V
GND ⑧ 0V
R905 10K
C905 25-33
D901 S5688
10.6V
IC902 μPC2410H
3
1
2
0.6V
D902 S5688
C906 16-100
C907 0.01
9.9V
13.0V
Q903 2SA1431
R908 10K
R909 2.7K
Q904 2SC2712
R910 10K
C908 50-1
C909 0.01
C910 16-10

■CIRCUIT DIAGRAM: 1/4

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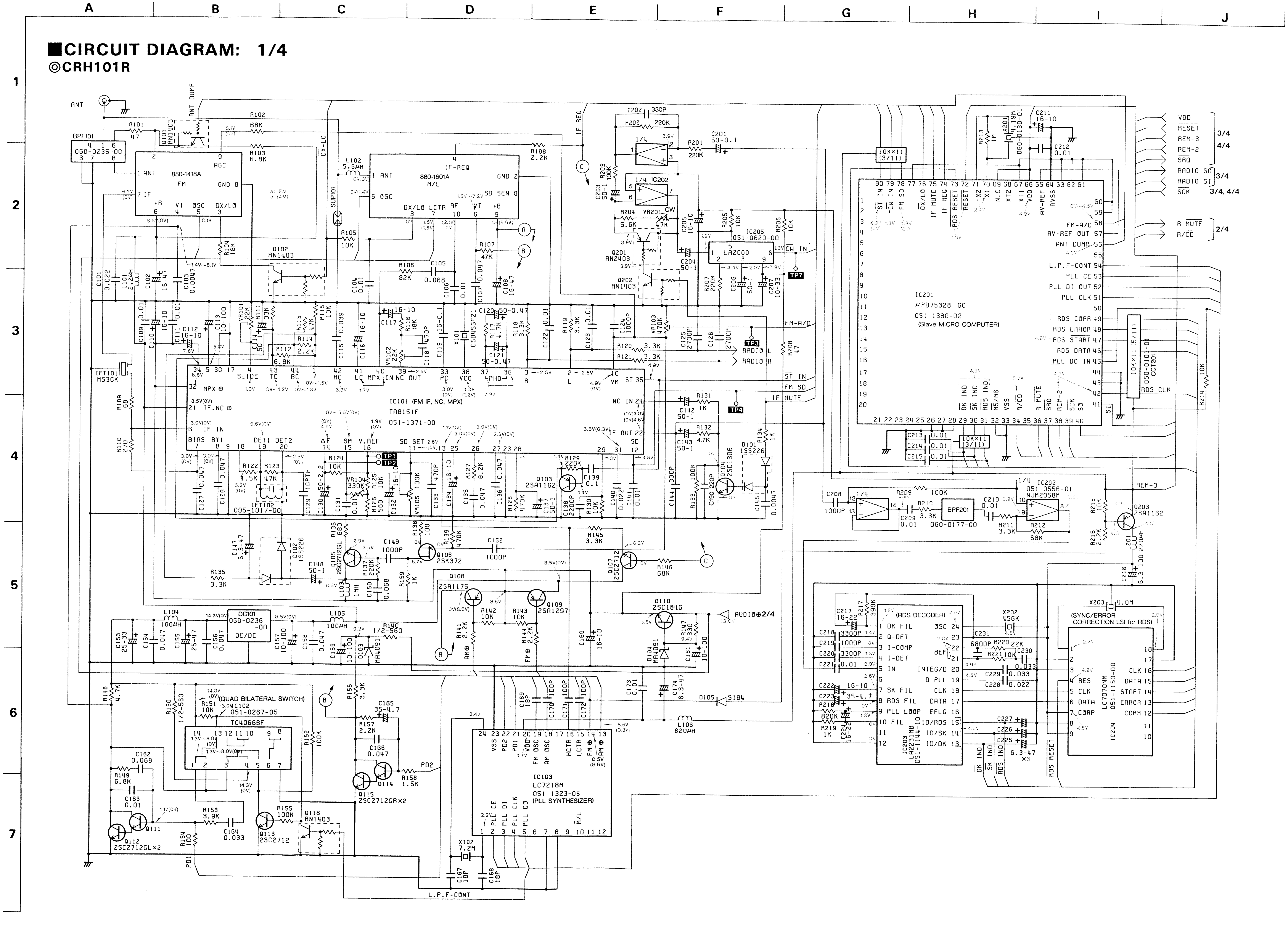
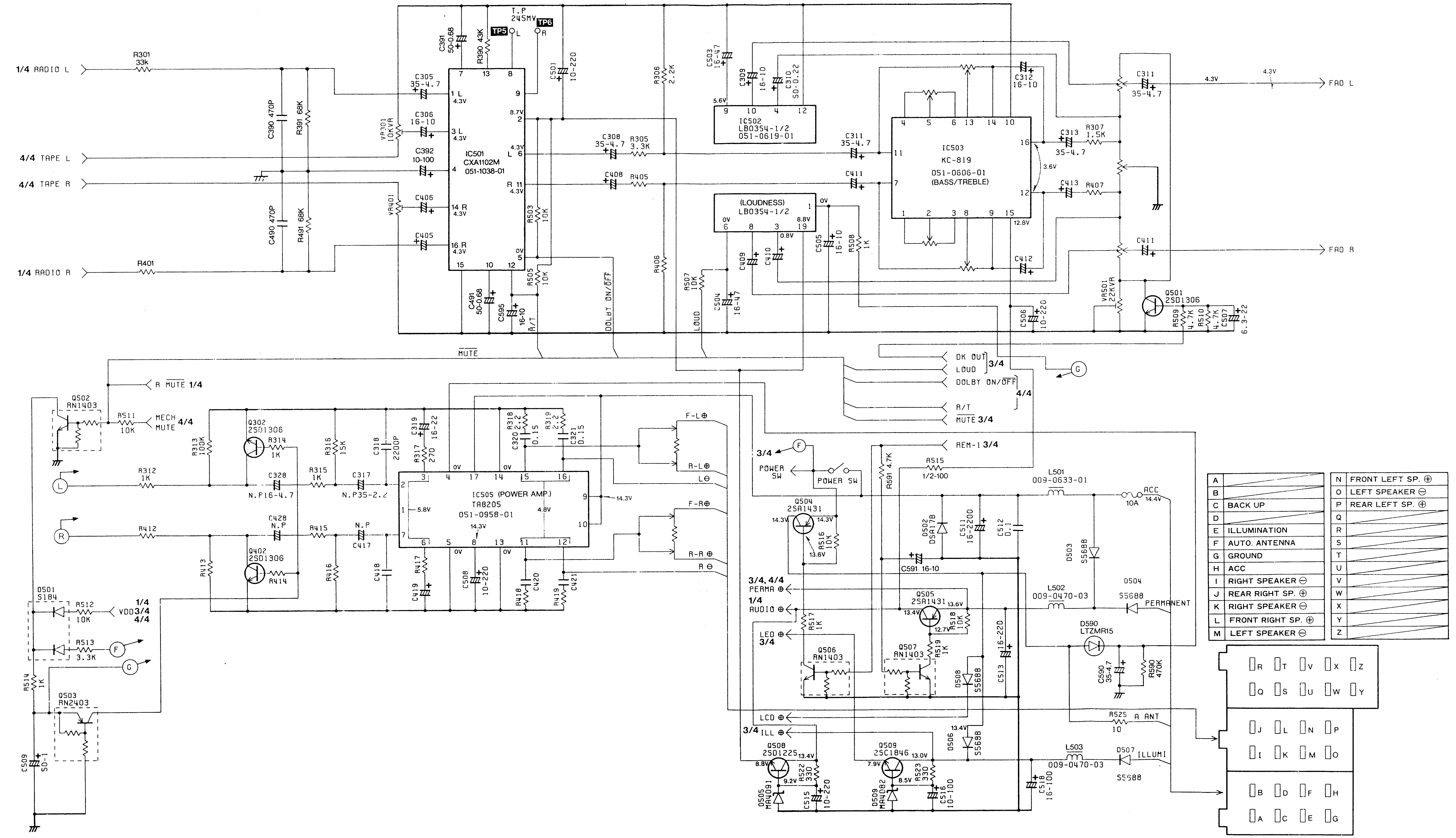

A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
ANT
BPF101
060-0235-00
ANT DUMP
Q101 RN1403
R101 47
R102 68K
R103 6.8K
880-1418A
FM
AGC
1 ANT
7 IF
GND 8
+B
VT
OSC
DX/LO
at FM
at (AM)
DX-LO
L102 5.6μH
SUP101
880-1601A
M/L
IF-REQ
1 ANT
5 OSC
GND 2
SD SEN 8
DX/LO LCTR
RF
VT
+B
R108 2.2K
IF REQ
R104 18K
Q102 RN1403
R105 10K
R106 82K
C105 0.068
R107 47K
C101 0.022
L101 2.2μH
C102 16-47
C103 0.0047
C104 0.01
C106 0.01
C107 0.047
C108 16-47
C202 330P
R202 220K
1/4
C201 50-0.1
R201 220K
R203 100K
C203 50-1
1/4 IC202
R204 5.6K
VR201 47K
CW
Q201 RN2403
Q202 RN1403
C205 16-10
R205 10K
IC205 051-0620-00
LA2000
R206 10K
CW IN
TP7
C204 50-1
R207 220K
C206 0.01
C207 16-33
IFT101 MS3GK
R109 68
R110 270
IC101 (FM IF, NC, MPX)
TA8151F
051-1371-00
MPX ⊕
IF.NC ⊕
IF IN
BIAS
BY1
DET1
DET2
SLIDE
TC
BC
HC
LC
MPX IN
NC-OUT
PC
VCO
PHD
R
L
VM
ST 35
NC IN 24
IF OUT 22
SD
ΔF
SM
V.REF
SD SET
C109 0.01
C110 50-1
C111 16-10
C112 16-10
C113 10-100
VR101 22K
R111 33K
R113 47K
R115 10K
C114 50-1
R112 6.8K
R114 2.2K
C115 0.039
C116 16-10
C117 16-10
R116 18K
C118 470P
VR102 22K
C119 16-0.1
X101 CSB456F21
C120 50-0.47
R117 4.7K
C121 50-0.47
R118 3.3K
C122 0.01
R119 3.3K
C123 0.01
C124 1000P
VR103 47K
FM-A/D
C125 2700P
C126 2700P
TP3
RADIO L
RADIO R
R120 3.3K
R121 3.3K
R208 47
ST IN
FM SD
IF MUTE
R131 1K
C142 50-1
TP4
R132 4.7K
C143 50-1
R134 1K
D101 1SS226
Q104 2SD1306
C190 220P
R133 100K
C144 330P
C145 0.0047
TP1
TP2
C127 0.047
C128 0.047
R122 1.5K
R123 47K
IFT102 005-1017-00
C129 10PTH
C130 50-2.2
R124 10K
VR104 330K
R125 10K
R126 560
C131 0.01
C132 16-10
VR105 100K
C133 470P
C134 16-10
C135 0.047
R127 8.2K
C136 0.047
R128 470K
C137 50-1
Q103 2SA1162
R129 220K
C138 2200P
C139 0.1
R130 10K
C140 0.022
C141 0.01
C147 6.3-47
D102 1SS226
R135 3.3K
C148 50-1
R136 680
Q105 2SC2712GL
C149 1000P
R137 220K
L103 1MH
C150 0.068
R159 1K
R138 100
Q106 2SK372
R139 470K
C152 1000P
R145 3.3K
Q107 2SC2712
R146 68K
Q108 2SA1175
Q109 2SA1297
R142 10K
R143 10K
R141 2.2K
AM ⊕
R144 2.2K
FM ⊕
Q110 2SC1846
AUDIO ⊕ 2/4
R147 330
C160 16-10
C161 10-100
D104 MA4091
C153 25-33
C154 0.047
L104 100μH
C155 25-47
C156 0.047
DC101 060-0236-00
DC/DC
C157 10-100
C158 0.047
L105 100μH
C159 10-100
D103 MA4091
R140 1/2-560
C173 0.01
C174 6.3-47
D105 S184
L106 820μH
R148 4.7K
R150 1/2-560
R151 10K
(QUAD BILATERAL SWITCH)
IC102 051-0267-05
TC4066BF
R152 100K
C162 0.068
R149 6.8K
C163 0.01
R153 3.9K
C164 0.033
Q111
Q112 2SC2712GL×2
R154 100
PD1
R155 100K
Q113 2SC2712
Q116 RN1403
R156 3.3K
C165 35-4.7
R157 2.2K
C166 0.047
R158 1.5K
PD2
Q114
Q115 2SC2712GR×2
C169 18P
C170 100P
C171 100P
C172 100P
IC103
LC7218M
051-1323-05
(PLL SYNTHESIZER)
VSS
PD2
PD1
VDD
FM OSC
AM OSC
HCTR
LCTR
FM ⊕
AM ⊕
PLL CE
PLL DI
PLL CLK
PLL DO
M/L
X102 7.2M
C167 18P
C168 18P
L.P.F-CONT
C211 16-10
X201 4.19M 060-0130-01
R213 1M
C212 0.01
10K×11 (3/11)
IC201
μPD75328 GC
051-1380-02
(Slave MICRO COMPUTER)
ST IN
CW IN
FM SD
DX/LO
IF MUTE
IF REQ
RDS RESET
RESET
X2
X1
N.C
XT2
XT1
VDD
AV-REF
AVSS
FM-A/D 58
AV-REF OUT 57
ANT DUMP 56
L.P.F-CONT 54
PLL CE 53
PLL DI 52
PLL CLK 51
RDS CORR 49
RDS ERROR 48
RDS START 47
RDS DATA 46
PLL DO IN 45
RDS CLK
DK IND
SK IND
RDS IND
M5/M6
VSS
R/CD
R MUTE
SRQ
REM-2
SCK
SO
SI
VDD
RESET
REM-3
REM-2
SRQ
RADIO SO
RADIO SI
SCK
3/4
4/4
3/4
3/4, 4/4
R MUTE
R/CD
2/4
10K×11 (5/11) 050-0101-01 CCT201
R214 10K
C213 0.01
C214 0.01
C215 0.01
10K×11 (3/11)
C208 1000P
1/4
R209 100K
R210 3.3K
C209 0.01
BPF201 060-0177-00
C210 0.01
R211 3.3K
R212 68K
1/4 IC202 051-0556-01 NJM2058M
REM-3
R215 10K
Q203 2SA1162
R216 2.2K
L201 220μH
C216 6.3-100
R217 390K
C217 16-22
(RDS DECODER)
DK FIL
Q-DET
I-COMP
I-DET
IN
SK FIL
RDS FIL
PLL LOOP
FIL
OSC
BEF
INTEG/D
D-PLL
CLK
DATA
EFLG
ID/RDS
ID/SK
ID/DK
C218 3300P
C219 1000P
C220 3300P
C221 0.01
C222 16-10
C223 35-4.7
R218 820K
C224 16-22
R219 1K
IC203 LA2231MB 051-1144-10
X202 456K
C231 6800P
R220 22K
R221 10K
C230 0.033
C229 0.033
C228 0.022
C227
C226
C225
6.3-47 ×3
DK IND
SK IND
RDS IND
RDS RESET
X203 4.0M
(SYNC/ERROR CORRECTION LSI for RDS)
RES
CLK
DATA
CORR
CLK 16
DATA 15
START 14
ERROR 13
CORR 12
LC7070NM 051-1150-00
IC204

■CIRCUIT DIAGRAM: 2/4

◎CRH101R


1/4 RADIO L
4/4 TAPE L
4/4 TAPE R
1/4 RADIO R
R301 33k
R401
C390 470P
R391 68K
C490 470P
R491 68K
VR301 10KVR
VR401
C305 35-4.7
C306 16-10
C392 10-100
C406
C405
C391 50-0.68
R390 43K
T.P 245MV
TP5 L
TP6 R
C501 10-220
IC501 CXA1102M 051-1038-01
C491 50-0.68
C595 16-10
R503 10K
R505 10K
C308 35-4.7
R305 3.3K
C408
R405
R306 2.2K
R406
DOLBY ON/OFF
R/T
C503 16-47
C309 16-10
C310 50-0.22
IC502 LB0354-1/2 051-0619-01
(LOUDNESS) LB0354-1/2
C409
C410
R507 10K
C504 16-47
LOUD
C505 16-10
R508 1K
C311 35-4.7
C411
IC503 KC-819 051-0606-01 (BASS/TREBLE)
C312 16-10
C313 35-4.7
R307 1.5K
C413
R407
C412
C506 10-220
VR501 22KVR
Q501 2SD1306
R509 4.7K
R510 4.7K
C507 6.3-22
FAD L
FAD R
MUTE
R MUTE 1/4
MECH MUTE 4/4
DK OUT 3/4
LOUD
DOLBY ON/OFF 4/4
R/T
MUTE 3/4
REM-1 3/4
Q502 RN1403
R511 10K
R313 100K
Q302 2SD1306
R314 1K
R312 1K
C328 N.P16-4.7
R315 1K
C317 N.P35-2.2
R316 15K
C318 2200P
C319 16-22
R317 270
R318 2.2
R319 2.2
C320 0.15
C321 0.15
IC505 (POWER AMP.) TA8205 051-0958-01
R412
C428 N.P
R415
C417 N.P
Q402 2SD1306
R414
R413
R416
C418
R417
C419
C508 10-220
C420
R418
R419
C421
F-L⊕
R-L⊕
L⊖
F-R⊕
R-R⊕
R⊖
D501 S184
R512 10K
R513 3.3K
VDD 1/4 3/4 4/4
R514 1K
Q503 RN2403
C509 50-1
POWER SW
R591 4.7K
R515 1/2-100
L501 009-0633-01
ACC 10A
Q504 2SA1431
R516 10K
D502 DSA17B
C511 16-2200
C512 0.1
D503 S5688
C591 16-10
3/4, 4/4 PERMA ⊕
1/4 AUDIO ⊕
LED ⊕ 3/4
R517 1K
Q505 2SA1431
R518 10K
R519 1K
Q506 RN1403
Q507 RN1403
L502 009-0470-03
D504 S5688
PERMANENT
D590 LTZMR15
C590 35-47
R590 470K
D508 S5688
C513 16-220
LCD ⊕
3/4 ILL ⊕
Q508 2SD1225
R522 330
C515 10-220
D505 MA4091
Q509 2SC1846
R523 330
C516 10-100
D509 MA4082
D506 S5688
C518 16-100
L503 009-0470-03
D507 S5688
ILLUMI
R525 10
A ANT
R T V X Z
Q S U W Y
J L N P
I K M O
B D F H
A C E G

A			N	FRONT LEFT SP. ⊕
B			O	LEFT SPEAKER ⊖
C	BACK UP		P	REAR LEFT SP. ⊕
D			Q	
E	ILLUMINATION		R	
F	AUTO. ANTENNA		S	
G	GROUND		T	
H	ACC		U	
I	RIGHT SPEAKER ⊖		V	
J	REAR RIGHT SP. ⊕		W	
K	RIGHT SPEAKER ⊖		X	
L	FRONT RIGHT SP. ⊕		Y	
M	LEFT SPEAKER ⊖		Z	

■CIRCUIT DIAGRAM: 3/4

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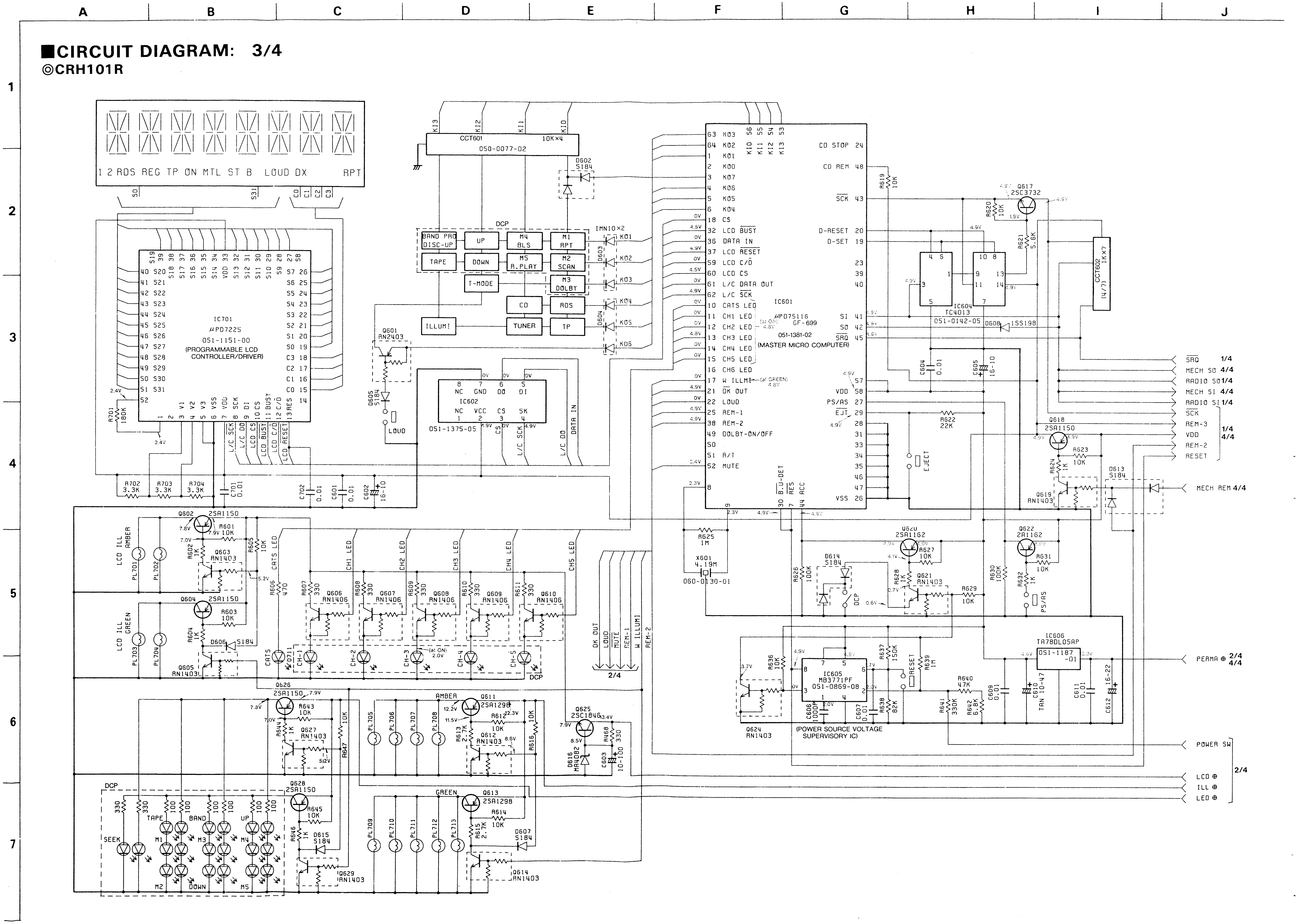
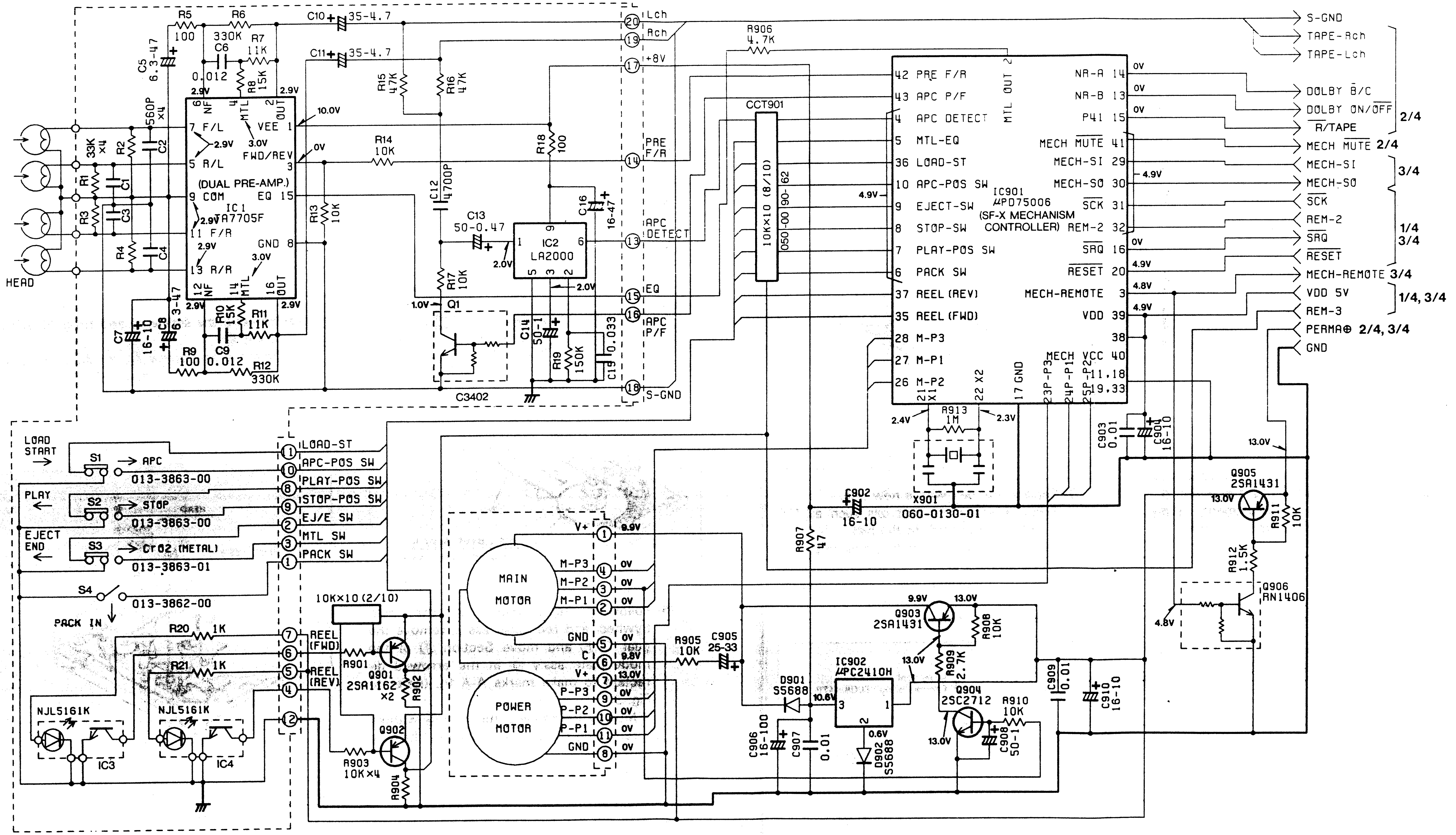


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
1 2 RDS REG TP ON MTL ST B LOUD DX RPT
S0
S31
C0 C1 C2 C3
IC701
μPD7225
051-1151-00
(PROGRAMMABLE LCD CONTROLLER/DRIVER)
R701 180K
R702 3.3K
R703 3.3K
R704 3.3K
C701 0.01
C702 0.01
C601 0.01
C602 16-10
L/C SCK
L/C DO
LCD CS
LCD BUSY
LCD C/D
LCD RESET
CCT601
050-0077-02
10K×4
K13
K12
K11
K10
D602 S184
DCP
BAND PRO DISC-UP
UP
M4 BLS
M1 RPT
TAPE
DOWN
M5 R.PLAY
M2 SCAN
T-MODE
M3 DOLBY
CD
RDS
ILLUMI
TUNER
TP
IMN10×2
D603
D604
K01
K02
K03
K04
K05
K06
Q601 RN2403
D605 S184
LOUD
IC602
051-1375-05
NC GND DO DI
NC VCC CS SK
DATA IN
IC601
μPD75116 GF-699
051-1381-02
(MASTER MICRO COMPUTER)
CD STOP
CD REM
SCK
D-RESET
D-SET
SI
SO
SRQ
VDD
PS/AS
EJT
VSS
DATA IN
LCD BUSY
LCD RESET
LCD C/D
LCD CS
L/C DATA OUT
L/C SCK
CATS LED
CH1 LED
CH2 LED
CH3 LED
CH4 LED
CH5 LED
CH6 LED
W ILLUMI
DK OUT
LOUD
REM-1
REM-2
DOLBY-ON/OFF
A/T
MUTE
B.U-DET
RES
ACC
R619 10K
Q617 2SC3732
R620 10K
R621 5.6K
IC604 TC4013
051-0142-05
CCT602 1K×7 (4/7)
D608 1SS198
C604 0.01
C605 16-10
R622 22K
EJECT
Q618 2SA1150
R623 10K
R624 1K
Q619 RN1403
D613 S184
SRQ 1/4
MECH SO 4/4
RADIO SO 1/4
MECH SI 4/4
RADIO SI 1/4
SCK
REM-3
VDD
REM-2
RESET
1/4
4/4
MECH REM 4/4
R625 1M
X601 4.19M
060-0130-01
Q620 2SA1162
R627 10K
R626 100K
D614 S184
R628 1K
Q621 RN1403
R629 10K
DCP
Q622 2A1162
R631 10K
R630 100K
R632 1K
PS/AS
IC606 TA78DL05AP
051-1187-01
PERMA ⊕ 2/4 4/4
IC605 MB3771PF
051-0869-08
(POWER SOURCE VOLTAGE SUPERVISORY IC)
R636 10K
R637 150K
RESET
R639 1M
R640 47K
R641 330K
R642 6.8K
R638 82K
C606 1000P
C607 0.01
C609 0.01
C610 TAN 10-47
C611 0.01
C612 16-22
Q624 RN1403
POWER SW
LCD ⊕
ILL ⊕
LED ⊕
2/4
Q602 2SA1150
R601 10K
R602 1K
Q603 RN1403
R605 10K
LCD ILL AMBER
PL701
PL702
Q604 2SA1150
R603 10K
R604 1K
D606 S184
Q605 RN1403
LCD ILL GREEN
PL703
PL704
R606 470
CATS LED
CATS
D711
R607 330
Q606 RN1406
R608 330
Q607 RN1406
R609 330
Q608 RN1406
R610 330
Q609 RN1406
R611 330
Q610 RN1406
CH-1
CH-2
CH-3
CH-4
CH-5
DCP
DK OUT
LOUD
MUTE
REM-1
W ILLUMI
REM-2
2/4
Q625 2SC1846
R468 330
D616 MA4082
C603 10-100
Q626 2SA1150
R643 10K
R644 1K
Q627 RN1403
R647 10K
AMBER
Q611 2SA1298
R612 10K
R613 2.7K
Q612 RN1403
R616 10K
PL705
PL706
PL707
PL708
DCP
SEEK
TAPE
BAND
UP
M1
M3
M4
M2
DOWN
M5
Q628 2SA1150
R645 10K
R646 1K
D615 S184
Q629 RN1403
GREEN
Q613 2SA1298
R614 10K
R615 2.7K
D607 S184
Q614 RN1403
PL709
PL710
PL711
PL712
PL713

A B C D E F G H I J

■CIRCUIT DIAGRAM: 4/4

◎CRH101R


HEAD
R5 100
R6 330K
C6 0.012
R7 11K
R8 15K
C5 6.3-47
560P ×4
33K ×4
R1
R2
R3
R4
C1
C2
C3
C4
IC1 TA7705F
(DUAL PRE-AMP.)
7 F/L
5 R/L
9 COM
11 F/R
13 R/R
VEE 1
FWD/REV 3
EQ 15
GND 8
MTL
OUT
NF
2.9V
3.0V
10.0V
0V
C7 16-10
C8 6.3-47
R9 100
C9 0.012
R10 15K
R11 11K
R12 330K
R13 10K
R14 10K
C10 35-4.7
C11 35-4.7
R15 47K
R16 47K
C12 4700P
C13 50-0.47
R17 10K
Q1
1.0V
IC2 LA2000
2.0V
R18 100
C14 50-1
R19 150K
C15 0.033
C16 16-47
C3402
Lch
Rch
+8V
PRE F/R
APC DETECT
EQ
APC P/F
S-GND
R906 4.7K
CCT901
10K×10 (8/10)
050-00 90-62
IC901 µPD75006 (SF-X MECHANISM CONTROLLER)
42 PRE F/R
43 APC P/F
4 APC DETECT
5 MTL-EQ
36 LOAD-ST
10 APC-POS SW
9 EJECT-SW
8 STOP-SW
7 PLAY-POS SW
6 PACK SW
37 REEL (REV)
35 REEL (FWD)
28 M-P3
27 M-P1
26 M-P2
MTL OUT 2
NR-A 14
NR-B 13
P41 15
MECH MUTE 41
MECH-SI 29
MECH-SO 30
SCK 31
REM-2 32
SRQ 16
RESET 20
MECH-REMOTE 3
VDD 39
38
MECH VCC 40
11, 18
19, 33
21 X1
22 X2
17 GND
23 P-P3
24 P-P1
25 P-P2
4.9V
4.8V
2.4V
2.3V
R913 1M
X901 060-0130-01
C902 16-10
C903 0.01
C904 16-10
S-GND
TAPE-Rch
TAPE-Lch
DOLBY B/C
DOLBY ON/OFF
R/TAPE
2/4
MECH MUTE 2/4
MECH-SI
MECH-SO
3/4
SCK
REM-2
SRQ
RESET
1/4
3/4
MECH-REMOTE 3/4
VDD 5V
REM-3
1/4, 3/4
PERMA⊕ 2/4, 3/4
GND
13.0V
Q905 2SA1431
R911 10K
R912 1.5K
Q906 RN1406
LOAD START
S1 → APC 013-3863-00
PLAY
S2 → STOP 013-3863-00
EJECT END
S3 → CrO2 (METAL) 013-3863-01
S4 013-3862-00
PACK IN
R20 1K
R21 1K
NJL5161K
IC3
IC4
LOAD-ST
APC-POS SW
PLAY-POS SW
STOP-POS SW
EJ/E SW
MTL SW
PACK SW
REEL (FWD)
REEL (REV)
10K×10 (2/10)
R901
Q901 2SA1162 ×2
R902
Q902
R903 10K×4
R904
MAIN MOTOR
POWER MOTOR
V+
M-P3
M-P2
M-P1
GND
C
P-P3
P-P2
P-P1
9.9V
9.8V
13.0V
R905 10K
C905 25-33
R907 47
D901 S5688
10.6V
IC902 µPC2410H
0.6V
D902 S5688
C906 16-100
C907 0.01
Q903 2SA1431
R908 10K
R909 2.7K
Q904 2SC2712
R910 10K
C908 50-1
C909 0.01
C910 16-10

■ADJUSTMENT OF MECHANISM:

1. Adjustment of tape speed

Reproducing the 3kHz speed tape, adjust VR inside the motor so that the reading of frequency counter becomes within the range of 2990Hz to 3100Hz. (Refer to Fig. 1)

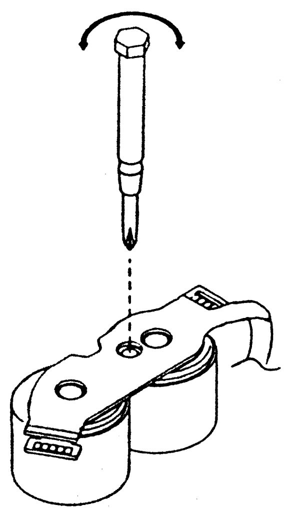


Fig. 1

2. Adjustment of head azimuth

(1) Play back azimuth tape (10kHz, −10dB) and adjust the screw so that the peak of FWD and REV will be 10kHz.
(Refer to Fig. 2)
As shown in the figure, ⓐ turn in the direction ⓐ tilts the head upward and a turn in the direction ⓑ tilts it downward.

(2) After completion of adjustment, apply LOCK-TIGHT Bond to the ⓒ section.
(Refer to Fig. 2)

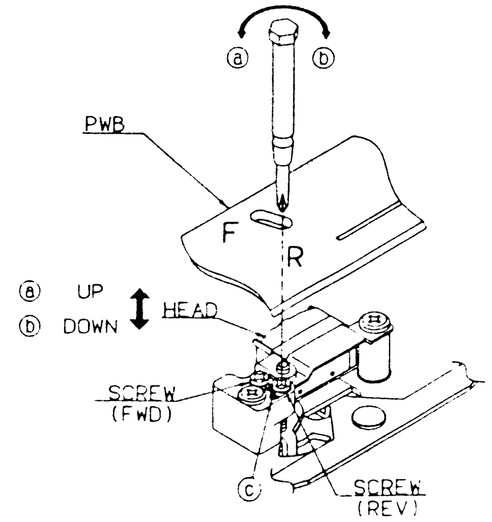

ⓐ
ⓑ
PWB
F
R
ⓐ UP
ⓑ DOWN
HEAD
SCREW (FWD)
ⓒ
SCREW (REV)

Fig. 2

■REPLACEMENT OF MECHANISM PARTS:

1. Replacement of belt, flywheel and reel base ass'y

(1) Remove Screws Ⓐ (4 pcs.).
(Refer to Fig. 3)

(2) Remove the flywheel-P-ass'y and then the bottom sub ass'y.

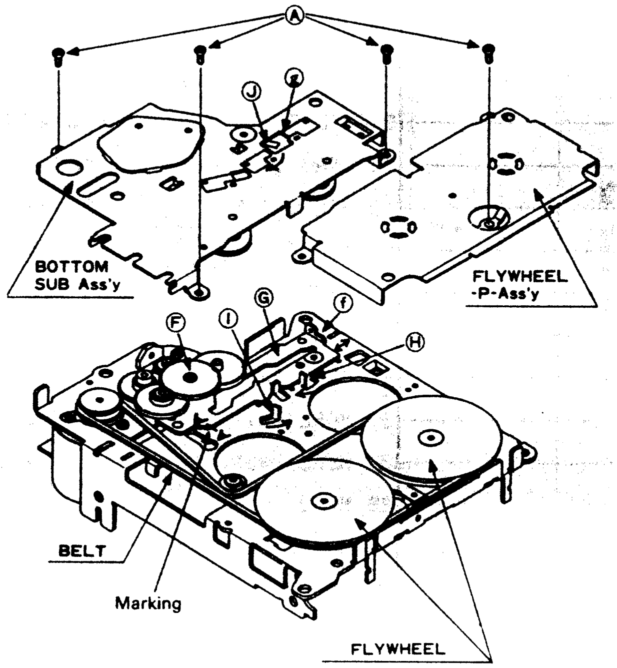

Ⓐ
Ⓙ
ⓚ
BOTTOM SUB Ass'y
FLYWHEEL -P-Ass'y
Ⓕ
Ⓘ
Ⓖ
ⓕ
Ⓗ
BELT
Marking
FLYWHEEL

Fig. 3

(3) Replace the belt with a new one.
※Pay attention so that oils such as MR paste do not stick to the belt.
Replace the flywheel with a new one.
(Refer to Fig. 4).
※When replacing the flywheel, apply FLOIL947P to Section ⓓ.
Note: Use specified oils.

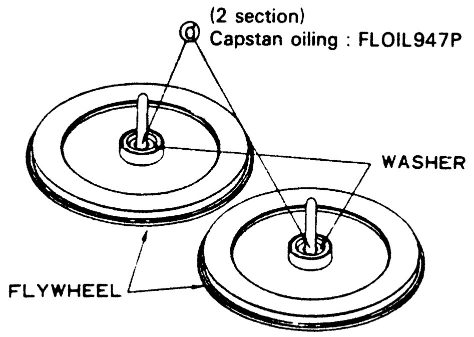

ⓓ (2 section)
Capstan oiling : FLOIL947P
WASHER
FLYWHEEL

Fig. 4

(4) Replacement of reel base ass'y
(Refer to Fig. 5)

(a) Remove the special washer Ⓒ (ϕ3.2 split).

(b) Remove the slide bushing Ⓓ and slide spring Ⓔ.

(c) Replace the reel base ass'y with a new one.
※When replacing the reel base ass'y, apply FLOIL G-488 to the section ⓔ of the reel shaft. Also check F and R sides of the reel base ass'y. The F side of the reel base ass'y is identified with blue, and the R side with white.

(d) Reassemble the reel base ass'y in the reverse order of (a) and (b).

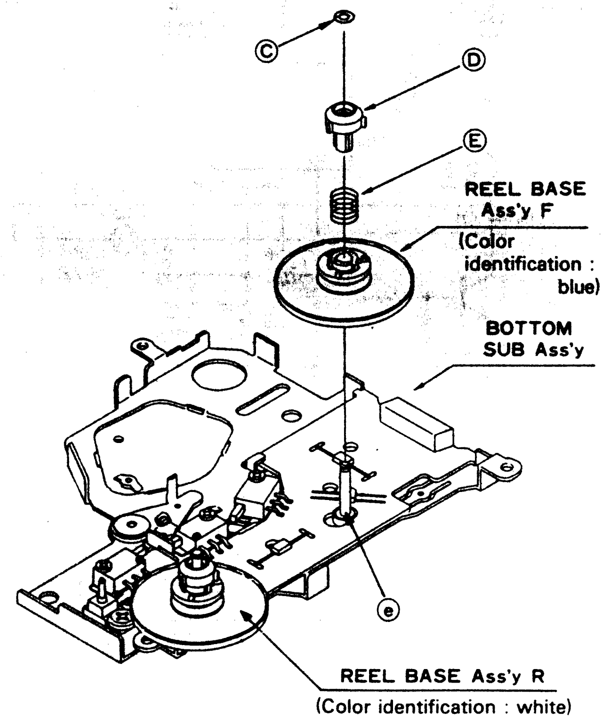

Ⓒ
Ⓓ
Ⓔ
REEL BASE Ass'y F
(Color identification : blue)
BOTTOM SUB Ass'y
ⓔ
REEL BASE Ass'y R
(Color identification : white)

Fig. 5

(5) Following replacement of the belt, flywheel and reel base ass'y, remove the gear C Ⓕ and move Section ⓕ of the mode plate ass'y Ⓖ in the arrowed direction to make marks A-A fit. (Refer to Fig. 3).
※Moving the mode plate ass'y Ⓖ without removing the gear C Ⓕ causes chipping of gears.

(6) Hold Ⓕ again.

(7) Move links of Ⓗ and Ⓘ to the arrowed direction.

(8) Push the link Ⓙ of the bottom sub ass'y toward the arrowed direction through the hole ⓚ so that the reel base ass'y is placed below the flywheel. Holding this condition, drop the bottom sub ass'y.

(9) Reassemble the flywheel-P-ass'y and fasten it with Screws Ⓐ (4 pcs.).

2. Replacement of head

(1) Remove solder from 5 points at Section ⓗ. (Refer to Fig. 6).

(2) Loosen Screws Ⓚ (2 pcs.) to remove the frame sub ass'y.

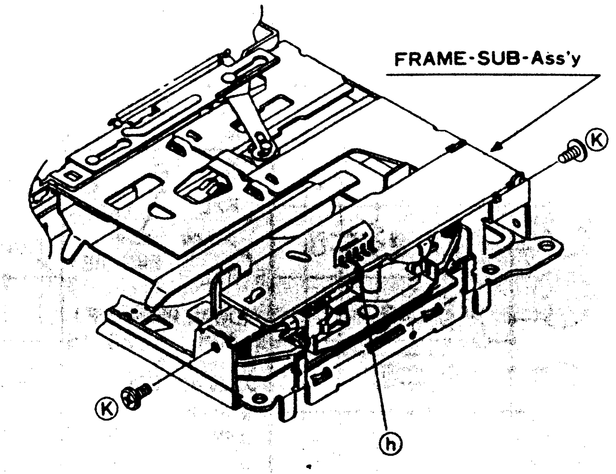

FRAME-SUB-Ass'y
Ⓚ
Ⓚ
ⓗ

Fig. 6

(3) Remove the screw Ⓛ and then ADJUST-BASE Ⓜ.

(4) Remove the screw Ⓝ, lift ADJUST-LINK Ⓞ and replace the head. (Refer to Fig. 7)

(5) Re-assemble FRAME-SUB-ASS'Y in the reverse procedures of 1 to 4.

(6) Perform the azimuth adjustment of the head.

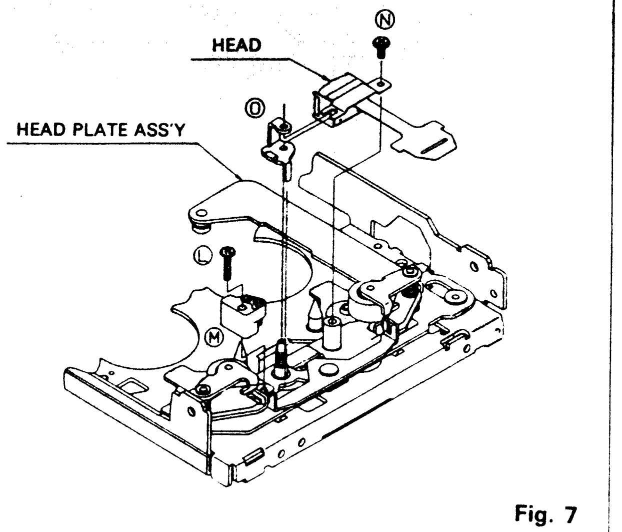
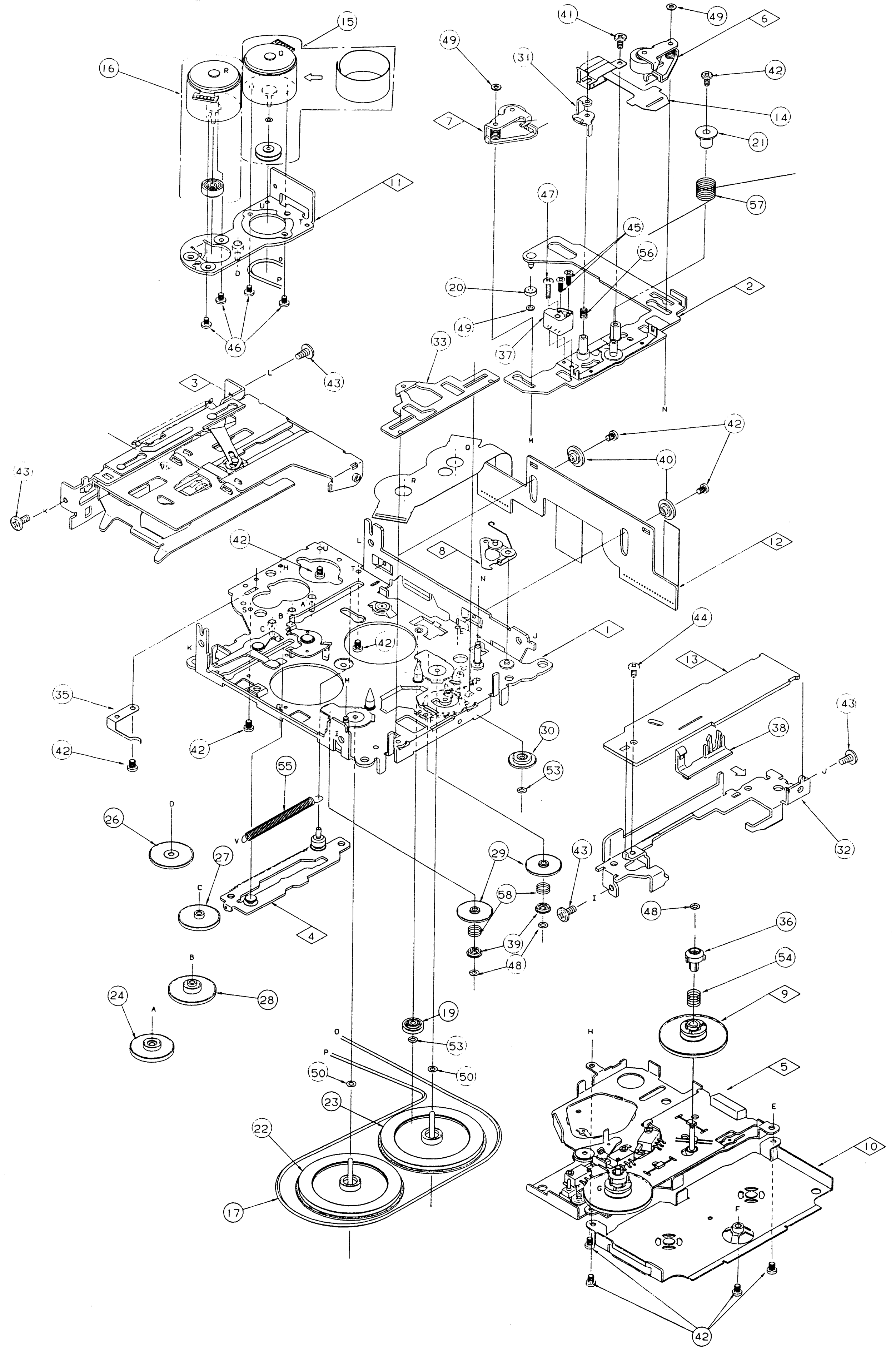

Ⓝ
HEAD
Ⓞ
HEAD PLATE ASS'Y
Ⓛ
Ⓜ

Fig. 7

- SPECIFICATION −LIMIT−
  Wow & flutter : Less than 0.18%(W.R.M.S.)

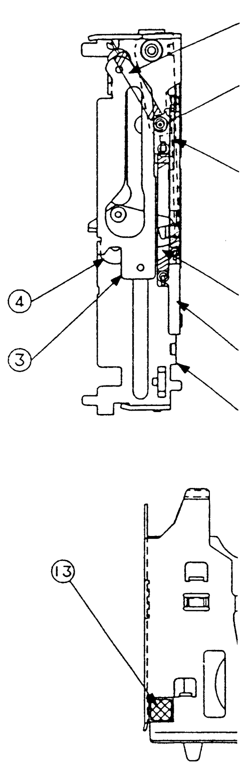
■EXPLODED VIEW • PARTS LIST:

◎Tape mechanism section (SF-X TYPE 0) 930-0592-00

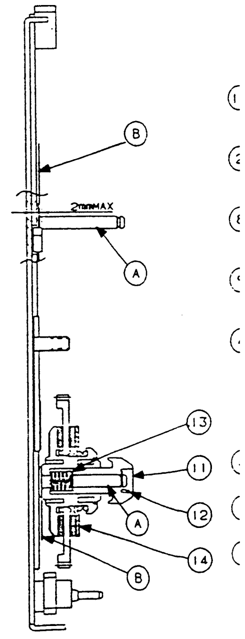

15
16
49
41
31
49
6
42
7
14
21
11
57
47
45
56
20
2
49
33
37
46
3
43
43
42
40
42
12
8
1
44
13
42
35
42
42
30
53
38
43
55
26
32
27
4
29
58
43
39
48
48
36
54
28
24
9
19
53
50
50
23
5
22
10
17
42

REF.NO.	PART NO.	DESCRIPTION	Q'TY
1	960-4102-05	Deck plate ass'y	1
2	960-4093-04	Head plate ass'y	1
3	960-4107-04	Eject sub ass'y	1
4	960-4011-04	Mode plate ass'y	1
5	960-4106-03	Bottom sub ass'y	1
6	960-4050-03	Roller sub ass'y F	1
7	960-4051-03	Roller sub ass'y R	1
8	960-4099-02	CH-hold ass'y	1
9	960-4016-02	Reel base ass'y F	1
10	960-4105-02	Flywheel plate sub ass'y	1
11	960-4129-01	Motor plate ass'y	1
12	099-8928-00	P.W.B	1
13	099-8989-01	PRE-P.W.B	1
14	011-0310-10	Head	1
15	SMA-123-100	Main motor	1
16	SMA-122-101	Power motor	1
17	602-0111-00	Belt	1
19	604-0036-03	Tension pulley	1
20	610-0316-01	Head-P-roller-M	1
21	610-0322-01	CH-link sleeve	1
22	611-0084-01	Flywheel R	1
23	611-0085-01	Flywheel F	1
24	613-0122-01	Shift-P-gear	1
26	613-0246-00	Gear A	1
27	613-0247-00	Gear B	1
28	613-0248-00	Gear C	1
29	613-0249-00	Play idler gear	2
30	613-0250-00	Change gear A	1
31	630-2342-04	Adjust link	1
32	630-2388-03	P.W.B frame TZ	1
33	630-2343-04	Change plate	1
35	630-2413-01	Motor spring	1
36	631-0601-01	Slide bush	1
37	631-0650-00	Adjust base	1
38	631-0636-00	Guide base	1
39	631-0637-00	Idler roller	2
40	631-0640-00	P.W.B guide C	2
41	714-2003-81	Machine screw (M2x3)	1
42	714-2004-81	Machine screw (M2x4)	11
43	714-3004-11	Machine screw (M3x4)	4
44	714-2604-11	Machine screw (M2.6x4)	1
45	716-0833-02	Azimuth screw	2
46	716-0835-00	Motor screw	4
47	739-2090-17	Precision screw	1
48	746-0761-00	Washer	3
49	746-0768-00	Washer	3
50	746-0624-00	Washer	2
53	746-0724-00	Washer	2
54	750-2720-00	Slide spring	1
55	750-2718-00	Mode-P-spring	1
56	750-2721-02	Azimuth spring	1
57	750-2790-01	HP-spring	1
58	750-2793-01	Idler spring	2

◎EJECT SUB Ass



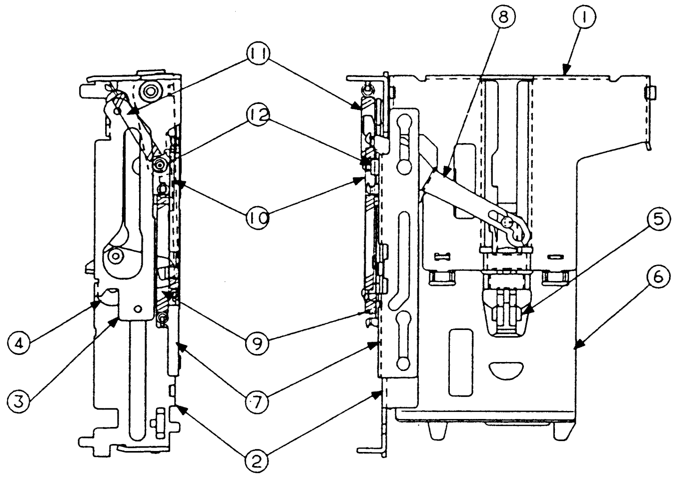
◎BOTTOM SUB

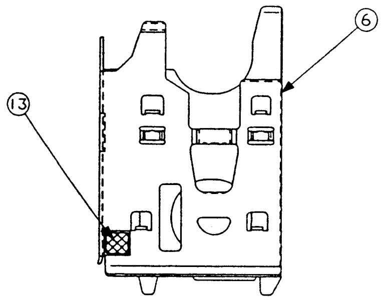

B
2mmMAX
A
13
11
12
A
14
B

REF.NO.	PART NO.	DESCRIPTION	Q'TY
1	960-4102-05	Deck plate ass'y	1
2	960-4093-04	Head plate ass'y	1
3	960-4107-04	Eject sub ass'y	1
4	960-4011-04	Mode plate ass'y	1
5	960-4106-03	Bottom sub ass'y	1
6	960-4050-03	Roller sub ass'y F	1
7	960-4051-03	Roller sub ass'y R	1
8	960-4099-02	CH-hold ass'y	1
9	960-4016-02	Reel base ass'y F	1
10	960-4105-02	Flywheel plate sub ass'y	1
11	960-4129-01	Motor plate ass'y	1
12	099-8928-00	P.W.B	1
13	099-8989-01	PRE-P.W.B	1
14	011-0310-10	Head	1
15	SMA-123-100	Main motor	1
16	SMA-122-101	Power motor	1
17	602-0111-00	Belt	1
19	604-0036-03	Tension pulley	1
20	610-0316-01	Head-P-roller-M	1
21	610-0322-01	CH-link sleeve	1
22	611-0084-01	Flywheel R	1
23	611-0085-01	Flywheel F	1
24	613-0122-01	Shift-P-gear	1
26	613-0246-00	Gear A	1
27	613-0247-00	Gear B	1
28	613-0248-00	Gear C	1
29	613-0249-00	Play idler gear	2

REF.NO.	PART NO.	DESCRIPTION	Q'TY
30	613-0250-00	Change gear A	1
31	630-2342-04	Adjust link	1
32	630-2388-03	P.W.B frame TZ	1
33	630-2343-04	Change plate	1
35	630-2413-01	Motor spring	1
36	631-0601-01	Slide bush	1
37	631-0650-00	Adjust base	1
38	631-0636-00	Guide base	1
39	631-0637-00	Idler roller	2
40	631-0640-00	P.W.B guide C	2
41	714-2003-81	Machine screw (M2x3)	1
42	714-2004-81	Machine screw (M2x4)	11
43	714-3004-11	Machine screw (M3x4)	4
44	714-2604-11	Machine screw (M2.6x4)	1
45	716-0833-02	Azimuth screw	2
46	716-0835-00	Motor screw	4
47	739-2090-17	Precision screw	1
48	746-0761-00	Washer	3
49	746-0768-00	Washer	3
50	746-0624-00	Washer	2
53	746-0724-00	Washer	2
54	750-2720-00	Slide spring	1
55	750-2718-00	Mode-P-spring	1
56	750-2721-02	Azimuth spring	1
57	750-2790-01	HP-spring	1
58	750-2793-01	Idler spring	2

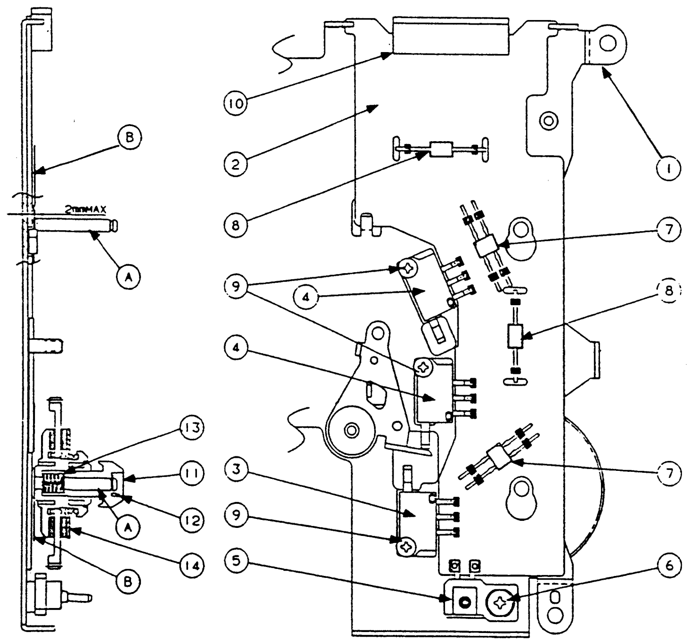
◎EJECT SUB Ass'y 960-4107-04





REF.NO.	PART NO.	DESCRIPTION	Q'TY
1	960-4007-03	Guide arm ass'y	1
2	960-4108-02	Side frame ass'y	1
3	960-4009-04	Eject-P-ass'y	1
4	960-4010-03	Eject link ass'y	1
5	631-0599-04	Pack stopper	1
6	606-0090-07	Pack guide	1
7	960-4057-03	Loading-P-ass'y	1
8	630-2340-01	Swing arm	1
9	750-2791-00	Load-P-spring	1
10	750-2716-01	Swing-A-spring	1
11	750-2719-01	Guide arm spring	1
12	610-0314-02	Guide-A-roller	1
13	746-0816-00	Pack set washer	1

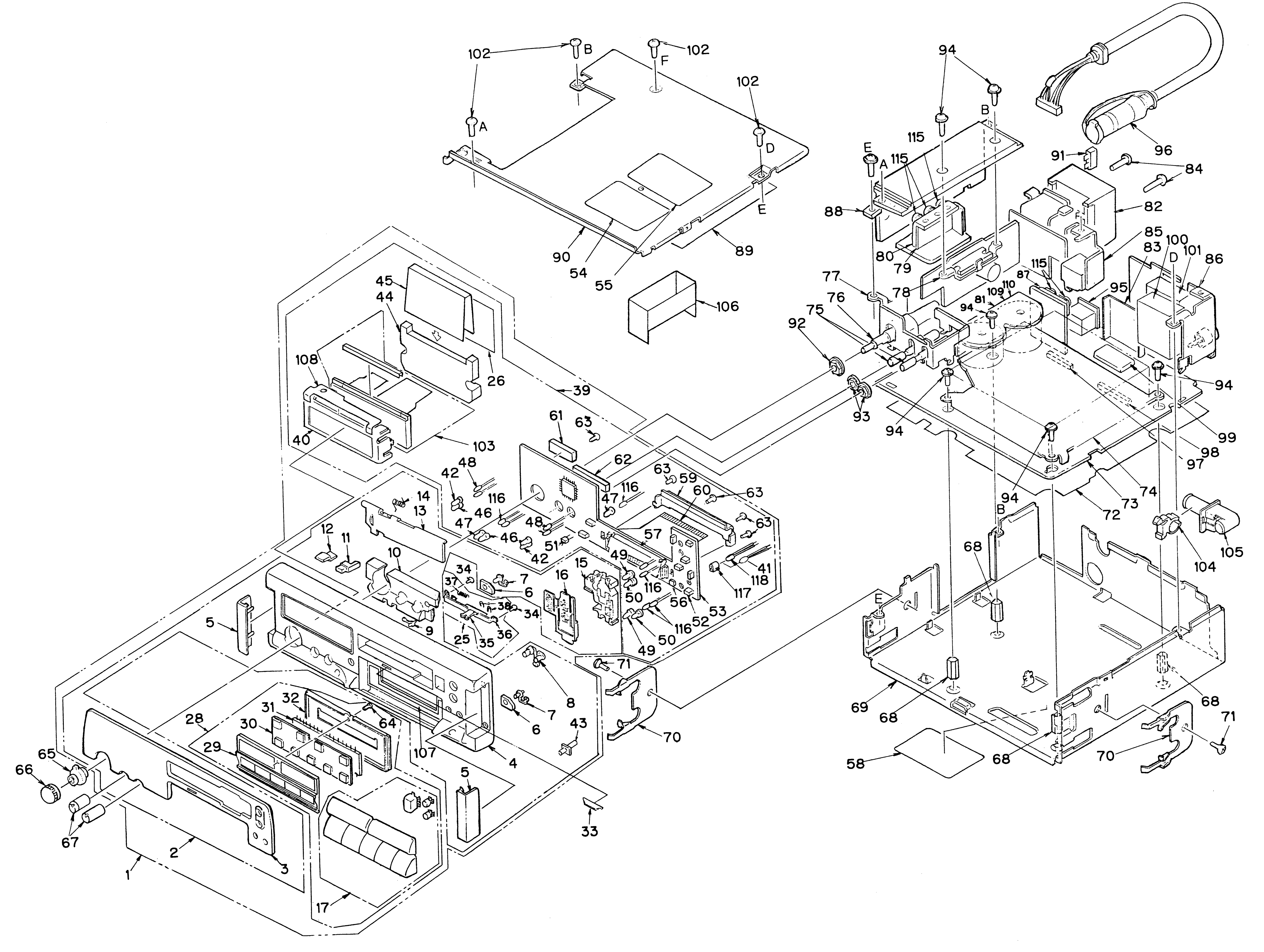
◎BOTTOM SUB Ass'y 960-4106-03



REF.NO.	PART NO.	DESCRIPTION	Q'TY
1	960-4096-02	Bottom-P-ass'y	1
2	099-9180-00	Bottom P.W.B	1
3	013-3863-01	Switch	1
4	013-3863-00	Switch	2
5	013-3862-00	Switch	1
6	714-2003-81	Screw	1
7	051-1114-00	IC (NJL5161K-P)	2
8	111-1021-91	Film resistor (1kΩ)	2
9	716-0834-00	Screw	3
10	074-0931-12	FPC socket	1
11	631-0601-01	Slide bush	1
12	746-0761-00	Washer	1
13	750-2720-00	Slide spring	1
14	960-4015-02	Reel base ass'y	1

■EXPLODED VIEW · PARTS LIST:

◎Main section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B
102
F
102
A
D
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54
55
89
106
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115
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79
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103
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107
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17

REF.NO.	PART NO.	DESCRIPTION	Q'TY
1	940-1252A	Escutcheon ass'y (CRX111R)	1
	940-1255A	Escutcheon ass'y (CRH101R)	
2	940-3099-02	Sub escutcheon ass'y (CRX111R)	1
	940-3100-02	Sub escutcheon ass'y (CRH101R)	
3	373-0592-02	Dial cover (CRX111R)	1
	373-0592-03	Dial cover (CRH101R)	
4	370-5202-02	Escutcheon (CRX111R)	1
	370-5202-03	Escutcheon (CRH101R)	
5	371-3642-00	Trim plate	2
6	335-3359-00	Illumination plate	2(CRX) 1(CRH)
7	382-2212-00	Button	2(CRX) 1(CRH)
8	382-2215-00	Button (RDS)	1
9	382-2216-00	Button (ILLUMI)	1
10	335-3358-00	Illumination plate (VOL)	1
11	335-3361-00	Indicator plate (CATS)	1
12	335-3375-00	Hook plate	1
13	320-0431-24	Dustproof cover (CRX111R)	1
	320-0431-30	Dustproof cover (CRH101R)	
14	750-2626-00	Spring	1
15	335-3360-01	Illumi. plate (CD BUTTON)	1
16	335-3381-00	Button holder (EJ, CD, TU)	1
17	947-0231-00	Button ass'y (CRX111R)	1
	947-0232-00	Button ass'y (CRH101R)	
25	330-0001A	Lock lever ass'y	1
26	347-3326-00	Film	1
28	940-1253A	DCP ass'y (CRX111R)	1
	940-1256A	DCP ass'y (CRH101R)	
29	940-3116-01	Escutcheon (DCP)	1
30	379-0316-00	DCP (DCP P.W.B)	1
31	076-0382-00	Plug (DCP)	1
32	335-3362-00	Back plate (DCP)	1
33	382-2217-00	DCP eject button	1
34	716-0674-00	Screw	2
35	330-9395-00	Hook	1
36	330-9396-00	SP-plate	1
37	750-2638-00	Off arm spring	1
38	743-1500-20	E-ring	2
39	990-0110A	Switch P.W.B ass'y (CRX111R)	1
	990-0111A	Switch P.W.B ass'y (CRH101R)	
40	330-9393-00	Shield cover (LCD)	1
41	017-0345-01	Pilot lamp (Parts side)	1
42	335-4441-58	P.L. cap (Amber)	2
43	335-3441-00	Badge (CRH101R)	1
44	335-3380-00	Illumination plate (LCD)	1
45	347-3240-00	Film	1
46	345-4441-61	P.L. cap (Green)	3
47	345-4441-01	P.L. cap (Amber)	2
48	017-0373-00	Pilot lamp	4
49	345-3436-56	P.L. cap (Green)	2
50	345-3436-38	P.L. cap (Amber)	2
51	001-0459-01	LED	1
52	013-3741-01	Switch	8(CRX) 7(CRH)
53	099-9084-01	SW-P.W.B	1
54	285-1411-00	Guide label (HOT)	1
55	285-1410-00	Guide label (Service)	1
56	013-3916-00	Switch (RESET)	1
57	074-0913-00	DCP connecter	1
58	286-7424-02	Set plate (CRX111R)	1
	286-7425-02	Set plate (CRH101R)	

REF.NO.	PART NO.	DESCRIPTION	Q'TY
59	330-9394-00	Connecter holder	1
60	099-9086-00	P.W.B (Flexible)	1
61	074-0931-14	Plug (14P)	1
62	074-0931-22	Plug (22P)	1
63	702-2005-81	Tap screw (2x5)	5
64	716-1463-00	Wave screw	1
65	380-5063-00	Knob (FAD)	1
66	380-5062-00	Knob (MAIN)	1
67	380-5135-00	Knob (BASS/TRE)	2
68	716-0875-00	Spacer (Stud bolt)	4
69	311-1444-04	Lower case (CRX111R)	1
	311-1444-05	Lower case (CRH101R)	
70	750-2649-01	Spring	2
71	714-3006-41	Machine screw (M3x6)	2
72	347-3231-00	Insulator	1
73	099-9085-01	Main P.W.B	1
74	930-0592-00	Tape mechanism (SFX-TypeO)	1
75	012-4987-00	Variable resistor (BASS/TRE)	2
76	012-4988-00	Variable resistor (CRX111R)	1
	012-4989-00	Variable resistor (CRH101R)	
77	330-9390-00	VOL holder	1
78	330-8976-01	IC support	1
79	330-9409-00	Heat sink holder	1
80	313-1423-00	Heat sink (Power supply)	1
81	313-1436-00	Heat sink (Motor)	1
82	074-0930-00	Connecter (ISO 26P)	1
83	347-2339-00	Insulator (RDS)	1
84	714-2610-71	Machine screw (M2.6x10)	2
85	330-9391-00	Back plate	1
86	330-9392-00	ANT. plate	1
87	313-1422-00	IC holder	1
88	313-1398-07	Heat sink	1
89	330-9447-00	Shield plate	1
90	303-0383-00	Upper cover	1
91	060-0057-56	Fuse (10A)	1
92	722-0370-00	Nut (MAIN)	1
93	722-0433-00	Nut (BASS/TRE)	2
94	716-0878-00	IT-screw	7
95	074-0818-00	Outlet socket (CRX111R)	1
96	854-1866-00	Extension lead (CRX111R)	1
97	076-0389-11	Connecter (11P)	1
98	076-0389-20	Connecter (20P)	1
99	060-0236-00	D-D converter	1
100	880-1601A	Tuner pack (LM/MW)	1
101	880-1418A	Tuner pack (FM)	1
102	714-2606-81	Machine screw (M2.6x6)	4
103	379-0013A	LCD ass'y	1
104	337-3399-00	ANT. holder	1
105	092-0641-00	ANT. adapter	1
106	347-3291-00	Insulator (Duct)	1
107	285-1444-00	DCP label	1
108	347-3272-00	Conducter	1
109	347-3265-00	Insulator	1
110	347-3259-00	Double face	1
115	714-2608-81	Machine screw (M2.6x8)	5
116	017-0345-09	Pilot lamp	7
117	345-3335-10	P.L. cap (Green)	2
118	017-0345-00	Pilot lamp (Pattern side)	1

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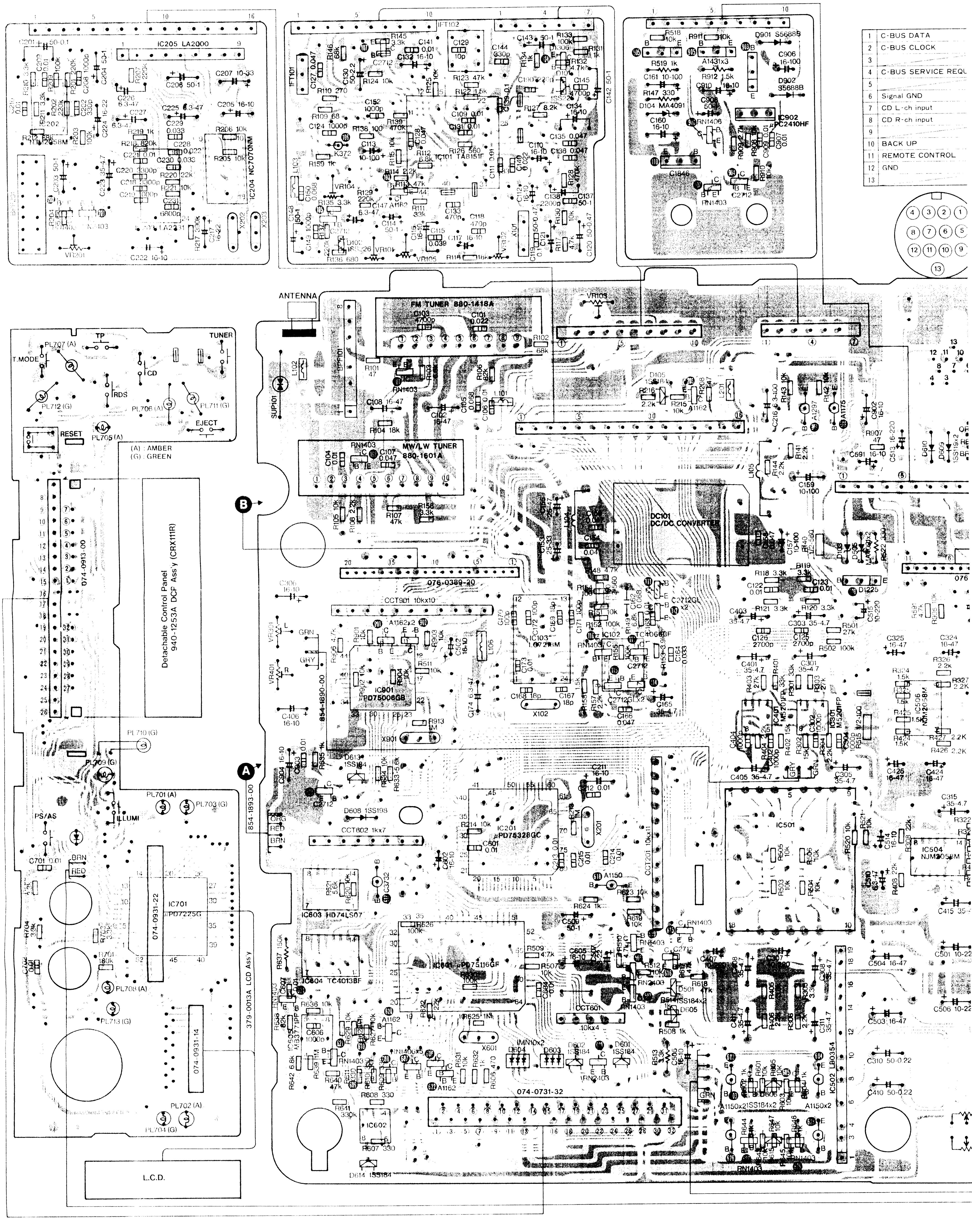
■PRINTED WIRING BOARD:

◎CRX111R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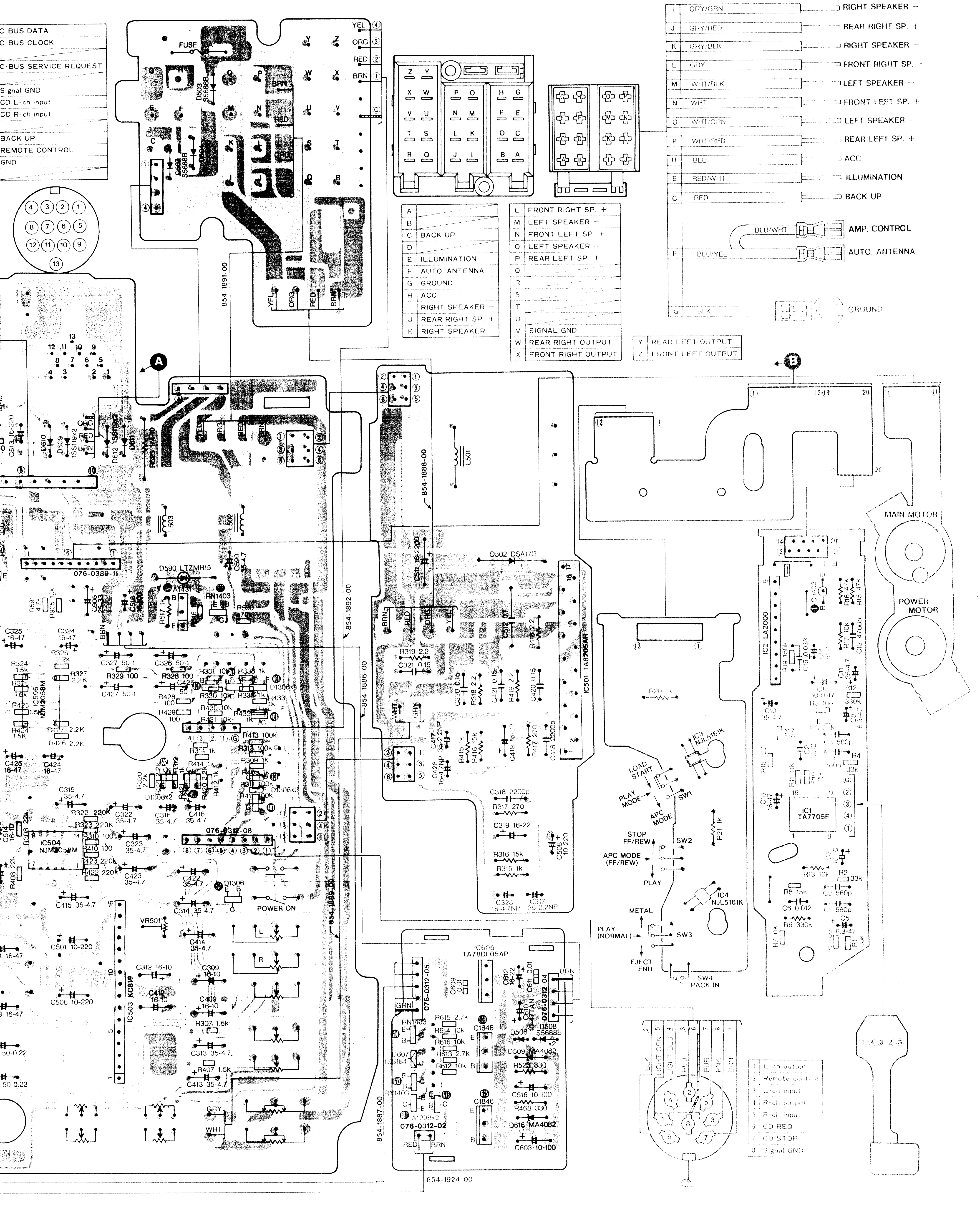
IC204 NC7070NM
IC202 NJM2058M
IFT101
IFT102
IC101 TA8151F
RN1406
PC2410HF
RN1403
ANTENNA
FM TUNER 880-1418A
MW/LW TUNER 880-1601A
SUP101
BPF101
TP
TUNER
T.MODE
CD
RDS
EJECT
RESET
(A) : AMBER
(G) : GREEN
Detachable Control Panel
940-1253A DCF Ass'y (CRX111R)
074-0913-00
DC101 DC/DC CONVERTER
076-0389-20
CCT901 10kx10
IC901 μPD75006GB
IC103 L072RM
IC102 TC4066BF
X102
X901
854-1890-00
854-1893-00
CCT602 1kx7
IC201 μPD75328GC
X201
CCT201 10kx11
IC501
IC504 NJM2058M
IC506 NJM2058M
IC401 M5201FP
IC301 M5201FP
IC603 HD74LS07
IC604 TC4013BF
IC601 μPD75116GF
CCT601 10kx4
X601
IMN10x2
IC602
IC502 LB0354
074-0731-32
IC701 μPD7225G
074-0931-22
074-0931-14
379-0013A LCD Ass'y
PS/AS
ILLUMI
L.C.D.

1	C-BUS DATA
2	C-BUS CLOCK
3	
4	C-BUS SERVICE REQU
5	
6	Signal GND
7	CD L-ch input
8	CD R-ch input
9	
10	BACK UP
11	REMOTE CONTROL
12	GND
13	



FUSE
YEL ④
ORG ③
RED ②
BRN ①
854-1891-00
854-1888-00
854-1892-00
854-1886-00
854-1889-00
854-1887-00
854-1924-00
076-0389-11
076-0312-08
076-0312-05
076-0312-04
076-0312-02
IC501 TA8205AH
IC503 KC818
IC504 NJM2058M
IC506 NJM2058M
IC606 TA78DL05AP
IC2 LA2000
IC1 TA7705F
IC3 NJL5161K
IC4 NJL5161K
D502 DSA17B
D590 LTZMR15
D503 S5688B
D508 S5688B
D509 MA4082
D616 MA4082
L501
L502
L503
VR501
POWER ON
LOAD START
PLAY MODE
APC MODE
SW1
STOP FF/REW
APC MODE (FF/REW)
PLAY
SW2
METAL
PLAY (NORMAL)
SW3
EJECT END
SW4 PACK IN
MAIN MOTOR
POWER MOTOR
A
B
BLK
LIGHT GRN
LIGHT BLU
RED
PUR
PNK
BRN
GROUND
AMP. CONTROL
AUTO. ANTENNA

	C-BUS DATA
	C-BUS CLOCK
	C-BUS SERVICE REQUEST
	Signal GND
	CD L-ch input
	CD R-ch input
	BACK UP
	REMOTE CONTROL
	GND

A	
B	
C	BACK UP
D	
E	ILLUMINATION
F	AUTO. ANTENNA
G	GROUND
H	ACC
I	RIGHT SPEAKER –
J	REAR RIGHT SP. +
K	RIGHT SPEAKER –

L	FRONT RIGHT SP. +
M	LEFT SPEAKER –
N	FRONT LEFT SP. +
O	LEFT SPEAKER –
P	REAR LEFT SP. +
Q	
R	
S	
T	
U	
V	SIGNAL GND
W	REAR RIGHT OUTPUT
X	FRONT RIGHT OUTPUT

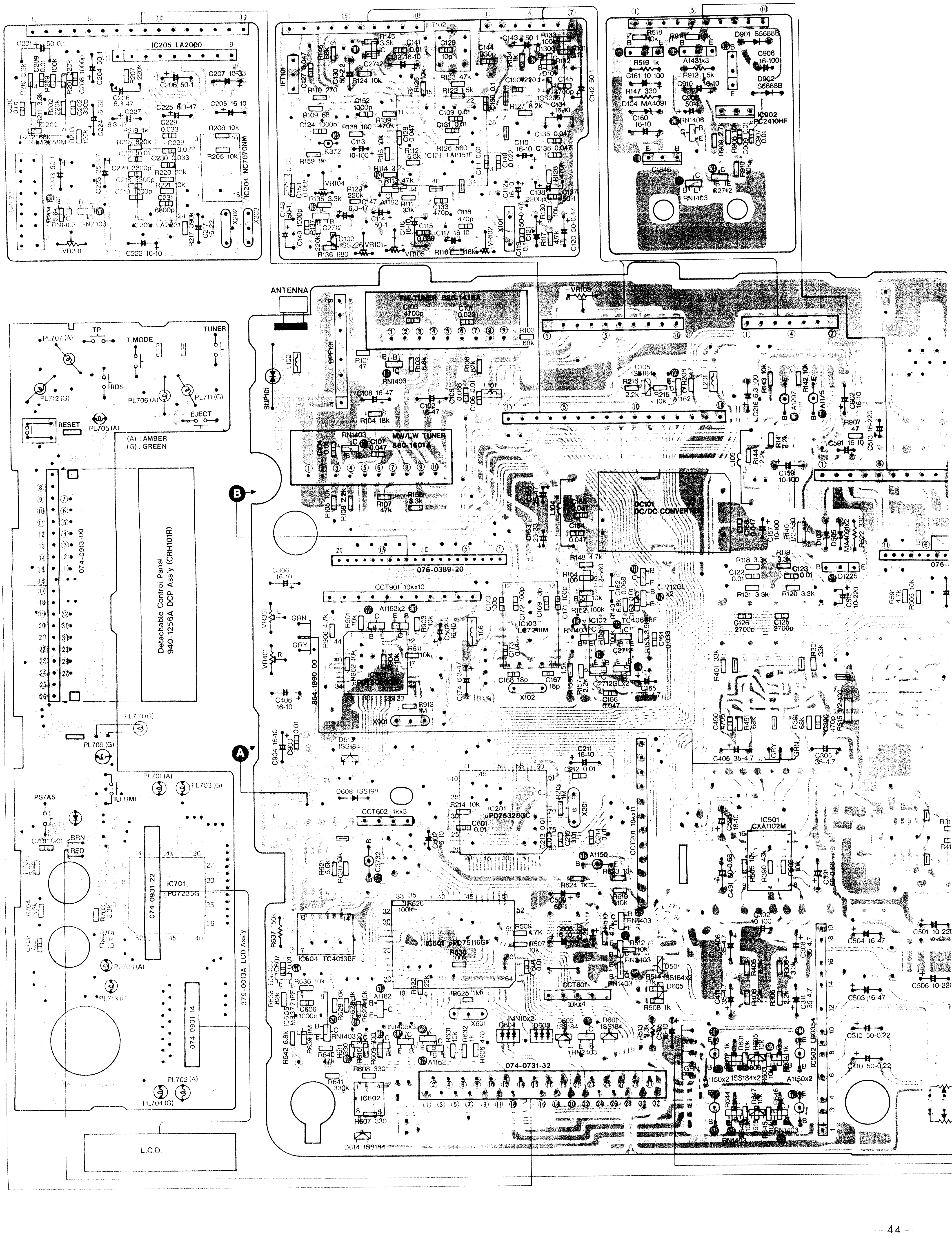
Y	REAR LEFT OUTPUT
Z	FRONT LEFT OUTPUT

I	GRY/GRN	RIGHT SPEAKER –
J	GRY/RED	REAR RIGHT SP. +
K	GRY/BLK	RIGHT SPEAKER –
L	GRY	FRONT RIGHT SP. +
M	WHT/BLK	LEFT SPEAKER –
N	WHT	FRONT LEFT SP. +
O	WHT/GRN	LEFT SPEAKER –
P	WHT/RED	REAR LEFT SP. +
H	BLU	ACC
E	RED/WHT	ILLUMINATION
C	RED	BACK UP
	BLU/WHT	AMP. CONTROL
F	BLU/YEL	AUTO. ANTENNA
G	BLK	GROUND

1	L-ch output
2	Remote control
3	L-ch input
4	R-ch output
5	R-ch input
6	CD REQ
7	CD STOP
8	Signal GND

■PRINTED WIRING BOARD:

©CRH101R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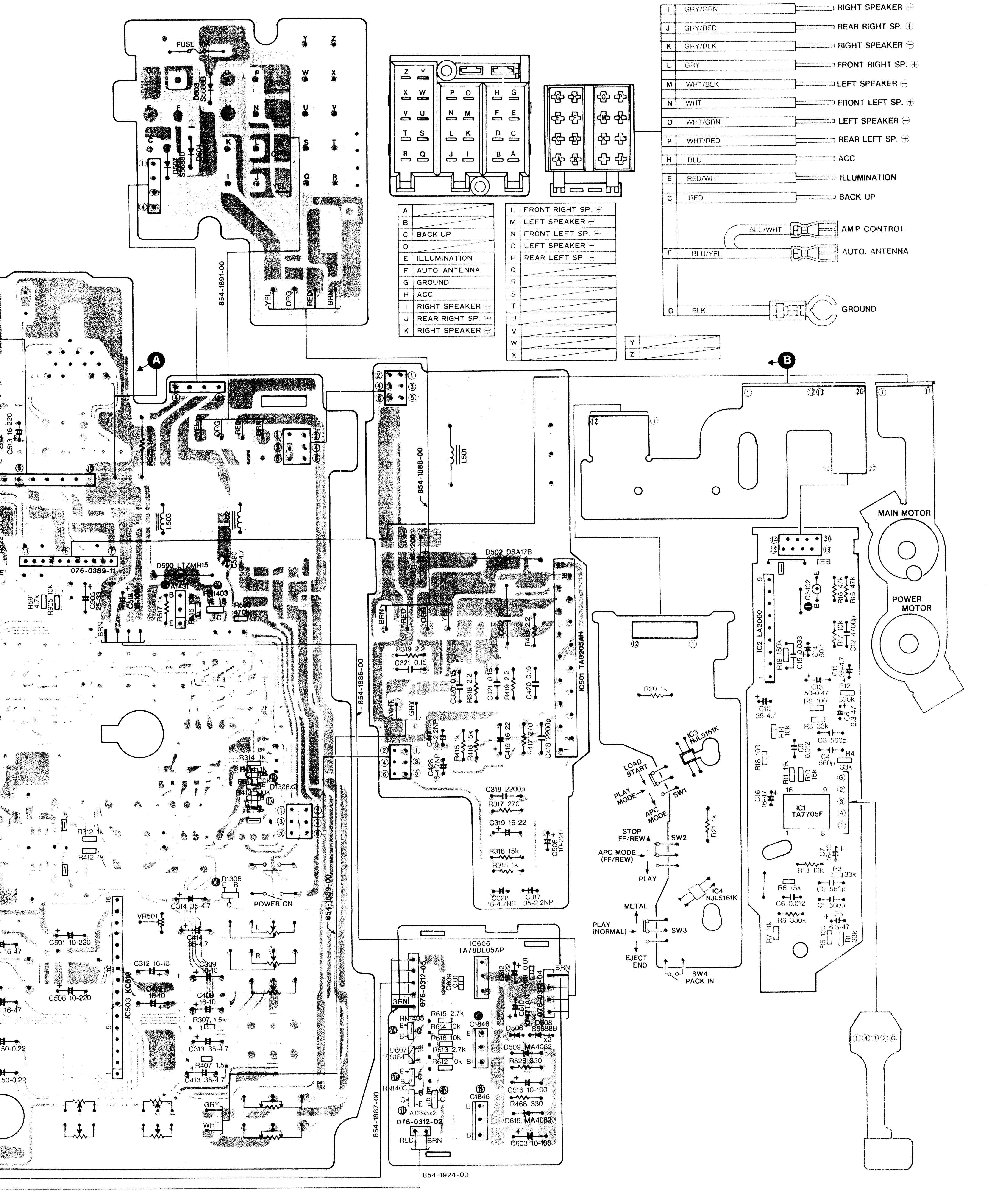
IC204 NC7070NM
IC202 LA2031
RN1403
VR201
C222 16-10
IFT101
IFT102
IC101 TA8151F
VR104
VR105
VR102
VR101
1SS226
X101
D901 S5688B
D902 S5688B
A1431x3
D104 MA4091
IC902 μPC2410HF
RN1403
ANTENNA
FM TUNER 880-1418A
MW/LW TUNER 880-1601A
SUP101
VR103
D105 1SS184
DC101 DC/DC CONVERTER
076-0389-20
CCT901 10kx10
IC103 LC7218M
X102
854-1890-00
X901
VR301
VR401
GRN
GRY
L
R
TP
T.MODE
TUNER
RDS
EJECT
RESET
PL707 (A)
PL712 (G)
PL706 (A)
PL711 (G)
PL705 (A)
(A) : AMBER
(G) : GREEN
074-0913-00
Detachable Control Panel
940-1256A DCP Ass'y (CRH101R)
B
A
PL710 (G)
PL709 (G)
PL701 (A)
PL703 (G)
ILLUMI
PS/AS
BRN
RED
IC701 μPD7225G
074-0931-22
PL708 (A)
PL713 (G)
074-0931-14
379-0013A LCD Ass'y
PL702 (A)
PL704 (G)
L.C.D.
IC201 μPD75328GC
X201
D608 1SS198
D613 1SS184
CCT602 1kx3
CCT201 10kx11
IC501 CXA1102M
IC601 μPD75116GF
IC604 TC4013BF
X601
IC602
D614 1SS184
D604
D603
D602 1SS184
D601 1SS184
CCT601 10kx4
D605
D501
074-0731-32
IC502 LB0354
1150x2
1SS184x2
A1150x2
RN1403



FUSE 10A
D503 S5688B
D507 S5688B
D504
854-1891-00
YEL
ORG
RED
BRN
A
B
854-1888-00
L501
L502
L503
076-0389-11
D590 LTZMR15
A1431
R591 4.7k
R905 10k
C905 25-33
C518
R517 1k
R516
R590
D502 DSA17B
IC501 TA8205AH
R319 2.2
C321 0.15
C320 0.15
R318 2.2
C421 0.15
R419 2.2
C420 0.15
R418 2.2
C512
WHT
GRY
C427 35-2.2NP
C428 16-4.7NP
R415 1k
R416 15k
C419 16-22
R417 270
C418 2200p
C318 2200p
R317 270
C319 16-22
R316 15k
R315 1k
C508 10-220
C328 16-4.7NP
C317 35-2.2NP
854-1886-00
854-1889-00
854-1887-00
R314 1k
D1306x2
R312 1k
R412 1k
D1306
POWER ON
C314 35-4.7
VR501
C501 10-220
C506 10-220
C312 16-10
C414 35-4.7
C309 16-10
C412 16-10
C409 16-10
R307 1.5k
C313 35-4.7
R407 1.5k
C413 35-4.7
IC503 KC519
C513 16-220
L
R
IC606 TA78DL05AP
076-0312-05
076-0312-04
076-0312-02
C609 0.01
C612 16-22
C611 0.01
RN1403
R615 2.7k
R614 10k
R616 10k
R613 2.7k
R612 10k
C1846
D506
D608 S5688B x2
D607 1SS184
D509 MA4082
R523 330
C516 10-100
R468 330
D616 MA4082
C603 10-100
A1298x2
RED
BRN
GRN
854-1924-00
MAIN MOTOR
POWER MOTOR
IC2 LA2000
IC1 TA7705F
IC3 NJL5161K
IC4 NJL5161K
R20 1k
R21 1k
LOAD START
PLAY MODE
APC MODE
SW1
STOP FF/REW
APC MODE (FF/REW)
PLAY
SW2
METAL
PLAY (NORMAL)
SW3
EJECT END
SW4 PACK IN
C3402
R16 47k
R15 47k
R19 150k
C15 0.033
C14 50-1
R17 10k
C12 4700p
C11 35-4.7
R12
C13 50-0.47
R9 100
C10 35-4.7
C8 6.3-47
R14 10k
R3 33k
C9 0.012
C3 560p
R4 33k
C4 560p
R18 100
R11 11k
R10 15k
C16 16-47
C7 16-10
R13 10k
R2 33k
R8 15k
C2 560p
C6 0.012
C1 560p
R6 330k
C5 6.3-47
R7 11k
R5 100
R1 33k
AMP CONTROL
AUTO. ANTENNA
GROUND
BLU/WHT
BLU/YEL
BLK

A	
B	
C	BACK UP
D	
E	ILLUMINATION
F	AUTO. ANTENNA
G	GROUND
H	ACC
I	RIGHT SPEAKER –
J	REAR RIGHT SP. +
K	RIGHT SPEAKER –

L	FRONT RIGHT SP. +
M	LEFT SPEAKER –
N	FRONT LEFT SP. +
O	LEFT SPEAKER –
P	REAR LEFT SP. +
Q	
R	
S	
T	
U	
V	
W	
X	

Y	
Z	

I	GRY/GRN	RIGHT SPEAKER ⊖
J	GRY/RED	REAR RIGHT SP. ⊕
K	GRY/BLK	RIGHT SPEAKER ⊖
L	GRY	FRONT RIGHT SP. ⊕
M	WHT/BLK	LEFT SPEAKER ⊖
N	WHT	FRONT LEFT SP. ⊕
O	WHT/GRN	LEFT SPEAKER ⊖
P	WHT/RED	REAR LEFT SP. ⊕
H	BLU	ACC
E	RED/WHT	ILLUMINATION
C	RED	BACK UP
F	BLU/YEL	AUTO. ANTENNA
G	BLK	GROUND